

COMMERCIAL SOLAR THERMAL SYSTEM: Ulster County Community College

Overview

DESIGNER: Patrick Gallagher, owner, Gallagher Solar Thermal, solarthermalsolution.com

LEAD INSTALLERS: Patrick Gallagher and Derek Quigley, Gallagher Solar Thermal

DATE COMMISSIONED: August 2008

INSTALLATION TIMEFRAME: 40 hours

LOCATION: Stone Ridge, NY, 41.85° N

SOLAR RESOURCE: 3.78 kWh/m² /day

ANNUAL HEATING DEGREE DAYS: 5,851

RECORD LOW TEMPERATURE: -19°F

COLLECTOR AREA: 200 square feet

AVERAGE ANNUAL PRODUCTION: 12 MWh

Equipment Specifications

COLLECTORS: Five SunEarth EC-40 collectors, 40 square feet each, black chrome absorber

STORAGE: Two existing 120 gallon A.O. Smith tanks preheat a 200 gallon gas fired water heater

HEAT EXCHANGER: Two AET 20 Gallon DBX Drainback Tanks, each with 20 square feet internal heat exchangers

PUMPS: Drainback/Glycol loop Grundfos UP 26-96, DHW Grundfos UP15-42SS

CONTROL: Steca SunEarth 0301U differential temperature control

FREEZE CONTROL: Drainback, propylene glycol

COLLECTOR INSTALLATION: sloped roof curbs on a flat roof, sloped 0.25 inch per foot, 145° azimuth, 45° tilt



Courtesy solarthermalsolution.com (2)

The Senate Gymnasium at Ulster County Community College (SUNY Ulster) in Stone Ridge, New York, has incorporated solar water heating into its buildings' efficiency plan to employ the most cost effective strategy for reducing energy costs on the campus. The project was included in an energy efficiency performance contract by Johnson Controls. A drainback

configuration was used, because the high limit controls the system without any overheating concerns when school is not in session.

Careful planning helped to avoid complications or scheduling issues that can arise when coordinating with other building trades in a very limited space. Fortunately, the relatively small mechanical room had a high ceiling, and it was put to use. Up was the only way to go to install the drainback tanks.

Another hurdle was the flat roof. The collectors were oriented 35° East of South due to the truss construction. The reduced heating capacity of the slightly less than optimal orientation was more than offset by the reflected radiation from the white roof surface.

"This project is a testament to the training and knowledge shared by solar pros like Bill Guiney, Rich Bonte and Tom Lane. These guys, with a combined experience of almost 100 years, have encouraged, instructed and mentored people like me as we try to build awareness in communities and governments that solar thermal will fit on an awful lot of roofs. It has unlimited application for power generation and energy independence, one shower at a time."

—Patrick Gallagher,
Gallagher Solar Thermal

