Solar Hot Water In New Jersey Home
Case Study

Residential Home Hot Water Retrofit
Solar Thermal DHW System in Kinnelon, NJ

Project Goals:
• Replace aging DHW system
• Energy savings and abundant hot water
• Reduce hot water heating cost

Background
In September 2013 a homeowner in Kinnelon (Morris County), New Jersey noticed the indirect hot water tank was leaking. He had recently received a promotional flyer from Crest Plumbing in Butler, New Jersey, so he contacted Crest President Gary Gentile. Gary came to evaluate the 5,000 sq ft home’s existing heating and hot water system, consisting of an oil-fired boiler with the leaking indirect storage tank. The homeowner signed an agreement with Crest to install the solar thermal system; however, winter weather was arriving, so as a temporary measure Gary replaced the leaking hot water tank with a new Buderus SM300 (80-gallon nominal capacity) indirect solar hot water tank.

Installation Summary
Once warmer weather arrived, Crest Plumbing returned to complete the conversion. Crest is an Accredited Bosch Contractor, and Gary has been installing solar thermal systems from various manufacturers for many years.

“I’m totally impressed with the Bosch / Buderus solar hot water system,” Gary remarked. “Setup and installation were straightforward - linesets are easy to use and the pump station is good. The Bosch collectors are much lighter in weight than competitive units - they need to be carefully aligned in the mounting cradle, but once squared up and properly in place, the installation is straightforward.”

Solar collectors contain an absorber that heats up when exposed to sunlight. The absorber contains pipes that circulate a glycol solution - when the fluid in the collectors is warmer than at the bottom of the storage tank, the controller will turn on the pump to transport hot fluid from the collectors to the tank and return cool fluid back to the collectors.

In the event of a prolonged period of cloudy weather or very high demand for hot water, the storage tank incorporates a dual internal coil to circulate heated water directly from the home’s main heating system when needed, so comfort is never compromised.
Benefits and Conclusion

“I’ve installed solar thermal systems for many years, and some of the older installations are still functioning well,” remarked Gary Gentile. “The Bosch / Buderus systems are well-designed and built to provide reliable performance over many years. We are pleased to provide them to our customers.”

Solar collectors mount on a south-facing roof to provide optimal collection and transfer of solar energy to the hot water system.

A solar thermal hot water system can be installed as part of a home renovation, as a retrofit to replace an aging hot water system, or during new home construction. It can even be used to heat a swimming pool, further decreasing the cost of energy.

“Solar water heating systems can provide immediate reduction in energy bills, saving as much as 75% on water heating costs, depending on geographic area and type of installation,” said Rich Buniewski, Bosch Thermotechnology Regional Sales Manager in New Jersey.

Solar thermal hot water system provides abundant hot water at reduced cost, supplemented with the home’s central heating system on cloudy days or during high hot water demand.

Project Name:
- Residential Solar Thermal Hot Water System Retrofit, Kinnelon, NJ

Installer:
- Crest Plumbing, Butler, NJ

Wholesaler:
- Hanover Supply, Randolph, NJ

Sales Representative:
- Marplat Company, Westbury, NY

Design Assistance:
- Mark Stimson, Bosch Thermotechnology

Application and Equipment:
- Two Bosch SKS 4.0 solar thermal collectors, controller, KS 105 pump station, 80 gal DHW storage tank with dual coil

Project Completion:
- Spring 2014