SKIP'S TIPS: Solar Water Heating Installation (Part 2)

In my first installation article, I warned against using plastic or polyolefin pipe insulation because of their vulnerability to melting. This article will discuss that issue further.

Rubatex and Armaflex are closed cell elastomeric insulations that have reasonably good temperature limits of 220˚F. For most normal solar water heating situations, this is sufficient protection, and we allow these insulations to be used. As with any insulation, be sure to protect the insulation from UV degradation! For some cases, however, a higher temperature limit insulation should be used, especially near the collector. The most serious case is with a drainback system. Drainback systems automatically drain the collectors when the water reaches the storage tank's high limit temperature (usually about 160˚F). This protects the tank and other components, but exposes the collector to a much higher temperature, possibly 300˚F or higher. The collector can take this exposure, but the heat conducts from the collector to the now empty piping attached to it. This could run the temperature of the piping at this point to over 220˚F, which may damage conventional closed cell insulation.

I recommend a 300˚F or higher rated insulation be used for at least 6 feet of piping next to the collector (inlet and outlet), then use normal closed cell elastomeric insulation for the remainder of the pipe. Examples of companies that carry 300˚F elastomeric insulation are listed below.

- K-Flex USA (**www.kflexusa.com**) Their product is KFlex ECO elastomeric insulation. See their Technical Bulletin TA8.
- Nomaco (**www.nomaco.com**) Technical Bulletin, TB-TA07-0108 discusses the difference between elastomeric (220˚F) and polyolefin (180˚F, if the tube has a PSA seam) insulations.

Thanks to customer Bruce Rogers for doing excellent homework on this issue.

By the way, a couple of inspected systems did not have insulated piping at the auxiliary water heater. SRCC requires that exposed hot pipes be insulated, as well as the cold supply pipe for 5 feet upstream from the auxiliary water heater. It makes good sense to minimize heat losses in cost effective ways so the customer will be happier and will provide referrals.

For more information on heat losses, see my article on **Unwanted Heat Migration**.

www.swh.energycenter.org

Skip Fralick
(858) 244-4868
skip.fralick@energycenter.org

Center for Sustainable Energy CALIFORNIA

Solar Water Heating Pilot Program
California Center for Sustainable Energy
8690 Balboa Ave. Suite 100 · San Diego, CA 92123