



SUNEARTH INC.
Quality Solar Energy Products

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**Solar Water Heating Technical Bulletin, Volume 2
Collector Manifolding Requirements For Pool Systems**

Solar pool heating systems often involve large numbers of collectors that are best arranged in backs of many panels. There are a number of factors to consider in designing the layout and piping of such arrays. The following recommendations are intended to provide guidance during design and installation to maintain the collector warranty. Consideration must be given to header sizing, the number of collectors manifolded in the array, flow balance and appropriate allowance for normal expansion and contraction in the headers.

HEADER SIZE & NUMBER OF COLLECTORS

These two design decisions are intimately related and are driven by the recommendation to keep the flow velocity in the first and last panel in an array to around 5 feet per second to insure the proper flow of around 4 GPM per panel. Standard pipe tables yield flow rates of about 30 GPM for 1.5" pipe. Since the first and last panel in an array must be able to take the full flow into and out of the array, **you should not install more than 8 panels with 1.5" headers in one array.** Reverse return piping and balancing valves on each array are highly recommended. Piping must be sized to maintain flow velocities in any branch at between 3 to 5 feet per second. No panel may experience a flow velocity in excess of 7 feet per second.

Please refer to SunEarth Technical Bulletin, Volume 2, June 1993 for flow balancing and expansion and contraction issues and requirements.