

TECHNICAL SERVICE BULLETIN

Piping Diagrams for Hot Water Recirculating Loops

General	Storage water heaters may be used in installations that recycle the hot water back to the heater as long as certain conditions are met. This bulletin addresses piping systems that recirculate the hot water for either quick hot water delivery or for combination space heating and water heating. These instructions show how to plumb a recirculating system for heaters that do not have dedicated side connections for the recirculating return water. For heaters with side connections, see their Instruction Manual.
⚠ WARNING	• Warning: Water heaters should not be used exclusively for space heating for extended time periods. This may cause problems including operation of the Temperature and pressure relief valve. Care must be taken if a residence is unoccupied for any reason.
Recirculating Loops	<p>Figure 1 shows a recirculating hot water loop and a tempered water outlet in a simple residential installation. See the heater's Instruction Manual for all other needed information. Please remember the following:</p> <ol style="list-style-type: none">1. In Massachusetts, a combination space heating/water heating system is required to purge itself every 6 hours. See the Instruction Manual for information;2. The expansion tank is required for a recirculating (closed) loop. Connect the Thermal Expansion Tank (available at your local plumbing supplier) to the cold water supply line near the water heater. The expansion tank contains a bladder and an air charge. To work properly, the Thermal Expansion Tank must be sized according to the water heater's tank capacity and pressurized to match the home's incoming water pressure. Refer to the installation instructions provided with the Thermal Expansion Tank for installation details.3. To reduce the risk of scalding, install Thermostatic Mixing Valves (temperature limiting valves) at each point-of-use. These valves automatically mix hot and cold water to limit the temperature at the tap. Mixing valves are available from your local plumbing supplier. Follow manufacturer's instructions for installation and adjustment of the valves.;4. The drain valve may not be used as a return inlet for the recirculating loop.

Recirculating Loops

