

## **HEAT CONSUMPTION**

The estimated energy cost for running a 40-gallon electric hot water heater is \$450 each year. A scale build up of just 3/8" gobbles up 55 percent more energy, according to the U.S. Bureau of Standards. That's an additional \$247 more each year to produce the same amount of hot water, for a total of \$697.

In heat exchangers/cooling towers, scale build-up results in reduced heat transfer resulting in higher energy and chemical costs, not to mention the environmental impact of chemical disposal.

Boilers suffer from scale build-up in the same way: a loss of heat transfer efficiency that triggers an increase in energy and chemical costs.

### **Example: Increases in Energy Consumption as a Function of Scale Thickness**

<b>Scale Thickness (inches)</b>	<b>Increased Energy Consumption (%)</b>
1/32	8.5
1/16	12.4
1/8	25
1/4	40
3/8	55

Scale build-up from hard water also causes the following problems:

- clogged water pipes
- reduced water pressure
- "frozen" valves on faucets
- hard-to-remove soap film on shower tiles and doors
- white deposits on shower heads
- spots and milky clouds on glassware and silverware
- crusted rings in toilet tanks
- spotting on tubs, chrome, and tile
- poor sudsing of soaps, detergents, and shampoos
- scale-related performance decreases in other appliances that use water