



**What does Energy Factor mean? How is “R” factor used?**

The two primary standards for water heater certification are:

**ANSI Z21.10.1/CSA 4.1 (Residential)**

Gas Water Heaters - Volume I, Storage Water Heaters With Input Ratings of 74,999 Btu Per Hour or Less

**ANSI Z21.10.3/CSA 4.3 (Commercial)**

Gas Water Heaters - Volume III - Storage Water Heaters, with Input Ratings Above 75,000 Btu Per Hour, Circulating and Instantaneous

Effective January 20<sup>th</sup>, 2004 Rheem no longer uses a reference to an “R” factor when discussing the insulation properties of its water heating products. The “R” factor ratings were an incomplete and sometimes misleading way to describe the energy efficiency of the water heater. With the implementation of the National Appliance Energy Conservation Act, the primary method of referring to the energy efficiency of a residential water heater is the Energy Factor.

Energy Factor is a relative number that is a standard measure for residential storage water heating products. It is determined through a Department of Energy (DOE) standard test procedure. This procedure involves a water heater that is put through a 24 hour simulated use test.

The same DOE simulated use test is used by all water heater manufacturers. All of the test procedures are mandated by the DOE. Test procedures include the length of the test; the thermostat setting; the water temperature of the cold water delivered into the water heater; and the quantity of hot water drawn from the heater during the 24 hours of testing.

The final number is displayed in a decimal equivalent. It is not meant to be a percentage. This number, called the Energy Factor (EF) represents the efficiency of the water heater; the higher the EF, the more efficient the unit. The Energy Factor represents two major conditions when determining water heater efficiency:

- How efficiently the unit uses fuel (gas or electric)
- How efficiently the unit retains heat during 'standby-by'

**How useful is the Energy Factor?**

The EF aids the consumer is making comparison shopping easier. When shopping for a new water heater, the consumer can compare the EF rating of the unit against like units. 'Like units' is not a relative term. When comparing the EF, consumers must compare water heaters with the same fuel source, gas or electric, and the same water storage capacity.

**For example:**

Comparing the EF between a natural gas unit and an electric unit is not comparison shopping. Comparing the 40 gallon electric units (as shown here) to each other is comparison shopping. Check the example below when shopping for a 40 gallon water heater:

Here are two Rheem 40 gallon electric water heaters:

Here are two Rheem 40 gallon gas water heaters:

Model Number	Energy Factor	Model Number	Energy Factor
83VR40-2	.94	42VR40F	.62
82V40-2	.92	42V40F	.60



**TECHNICAL SERVICE DEPARTMENT**  
**Technical Service Bulletin**  
**1-800-432-8373**



**What does Energy Factor mean? How is “R” factor used?**

Check with your local utility before purchasing a new water heater. There may be a rebate program, sponsored by the utility that will refund a portion of your purchase price when buying an energy saving appliance.

For more information on energy efficiency see document numbers 1213 – First Hour Delivery and 1215 – How to Read an Energy Guide Label.