

## COMMERCIAL + INDUSTRIAL SERVICES

bulletin

Technological advances in energy generation, distribution and delivery proceed at a remarkable pace. The options available to any commercial or industrial operation are as varied as they are numerous.

At Bay State Gas we strive to provide you the latest in technology and information on the most advanced and efficient natural gas energy solutions that are right for your business.



## HIGH EFFICIENCY WATER HEATERS

## High Efficiency Water Heaters

- > Lower operating costs – saves money
- > More efficient
- > Faster recovery: Heats water up to three times faster than electricity
- > Safe and reliable
- > Options include:
  - Standard Tank Water Heater,
  - High Efficiency Tank Water Heater,
  - Indirect Water Heaters (uses a boiler),
  - Continuous Water Heater (Tankless),
  - Combo heating (Boiler Summer-Winter hook up, or indirect water heating from boiler)
- > Direct vent can be installed almost anywhere
- > Continuous water heaters never run out of water and no downtime waiting for water heater to recover

## Facilities that may benefit from High Efficiency Water Heaters include:

- > Office buildings
- > Food service facilities
- > Transportation terminals
- > Health clubs
- > Schools and public buildings

## Storage Tank Water Heaters

Storage water heaters, also known as tank water heaters, are the most common type in use for commercial applications. On a lifecycle basis, gas-fired storage water heaters are typically the least expensive means of heating water. One reason is that per Btu, natural gas, as a primary energy source, is usually much less expensive than electricity.

Storage water heaters heat water in an insulated tank typically constructed using a glass-lined metal storage tank located above an insulated combustion chamber. Gas models require a gas input, a flue connection and, if equipped with intermittent ignition or a flue damper, an electric source.

Gas water heaters have minimal energy losses as a result of venting. Fan assisted gas water heaters and atmospheric sealed-combustion water heaters help reduce these losses. With fan-assisted gas water heaters, a draft-induced fan that regulates the air through the burner minimizes the amount of excess air during combustion, increasing efficiency. Atmospheric sealed-combustion water heaters use a combustion and venting system that is totally sealed from the building.

## High Efficiency Water Heaters



Rinnai LS Series indoor tankless water heater. Photo courtesy of Rinnai America Corp.



High efficiency 100 gal. tank type water heater. Photo courtesy of Bradford White Corp.

Intermittent ignition devices and flue dampers significantly improve water heater efficiency. These energy saving features are now standard on commercial gas water heaters. Active dampers also increase efficiency by blocking the center flue and preventing heat loss from the stored water during standby.

### Innovative Designs Offer Efficiency Improvements

**External heat exchange gas water heaters** are another energy saving improvement to storage waters.

These water heaters have their burner and flue outside of the water storage tank. When the burner is turned on, a pump circulates water from the tank through a coil of copper tubing that is wrapped around the burner. By eliminating both the exposed bottom surface of the tank and the center flue, standby losses are greatly reduced.

**Instantaneous water heaters** are also known as demand water heaters and tankless water heaters. Instantaneous water heaters are direct-fired water heaters that heat water only when it is called for, in other words, when there is a flow through the water heater so they never run out of hot water. Instantaneous water heaters can have a small amount of storage, but generally have no hot water storage capability.



*Tankless water heater in a typical residential application*

Instantaneous water heaters heat the water directly as needed. When a hot water tap is turned on, cold water travels through a pipe into the unit. Today's models have modulating controls that increase or decrease energy input to maintain the selected outlet temperature despite varying flow rates and inlet temperatures. In some models, temperature can be selected via remote controls. The water heater's burner is ignited by either a standing pilot or by an electronic ignition device.

Instantaneous water heaters can be centrally located, serving several end uses, or multiple point-of-use water heaters can be installed near sinks, showers or other end-use process applications. Point-of-use models offer the advantage of eliminating energy loss through long runs of hot water pipe and minimizing the delay for hot water to the user.

Because energy is not used keeping gallons of stored water hot or overheating water to 140°F to insure an adequate supply of

hot water (high recovery rate), instantaneous water heaters can offer significantly higher efficiencies. Compared to typical gas storage water heater efficiencies of 59% to 62%, gas instantaneous units can achieve efficiencies of 82% to 87%.



*Rinnai LS Series outdoor tankless water heater. Photo courtesy of Rinnai America Corp.*

## Partners In Energy Working Together

YOUR SOURCE FOR ENERGY SOLUTIONS

If you believe high efficiency water heating technology is an appropriate consideration for your operation, our **Partners In Energy** program can assist you. We offer financial incentives to help you minimize your upfront cost by sharing a portion of the cost to design, purchase and install the equipment. Simply follow the program guidelines to qualify for matching funds.\*

These rebates, combined with the reduction in your overall energy expenses can provide an outstanding return on investment that will pay dividends for years to come.

*\*Program restrictions apply. Limited time offer.*

FOR MORE INFORMATION call us toll-free

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