

## Fuel Service Stations & Convenience Stores

*Gasoline and diesel fuel stations often sell snacks, fast food, and vehicle supplies. Restrooms and are often available to customers, and truck stops often include showers. These stations are among the most common types of commercial enterprises.*

### Plumbing

Restrooms are one of the frequently used facilities that consume water at these locations. Use high-efficiency toilets requiring no more than 1.3 gallons per flush and urinals which flush with 1 gallon or less. Avoid automatically timed flushing systems. Use self-closing faucets with flows of 0.5 gpm for hand washing. If available, and if codes and health departments permit, flush with non-potable water.

For facilities with showers:

- ◆ use shower heads that allow flow of not more than 2.0 gallons per minute.
- ◆ install only one shower head per personal shower stall.
- ◆ install individual valves to control each shower head.

Spaces where regular water use may result in spills or where floors may be washed frequently often have floor drains. Plumbing codes require traps to prevent gases and odors from seeping from sanitary sewers into rooms through the drains. The gas is blocked by water trapped below the drain in an “S” shaped pipe called a “P trap.”

To sustain water in the trap in less frequently used spaces, additional water must be added with a device called a trap primer. A trap primer is a valve or other connection from a water source that allows a small amount of water to flow through pipes to recharge traps of one or more drains.

Avoid continuous flow to trap primers. Instead, install pressure-activated or electronic trap primers, each serving several drains.



**Restrooms consume a large portion of the water used in fuel service stations and convenience stores. Some truck stops even offer showers for their customers' use.**



## *Kitchen Equipment*

In food-service preparation and cleanup areas, employ the following principles:

- ◆ variable-flow aerators on food-service faucets should have a flow not exceeding 2.2 gpm.
- ◆ hand-washing faucets should be self-closing and flow at 0.5 gpm.
- ◆ dipper wells should have in-line restrictors that reduce flow to under 0.3 gallons per minute.

Select energy-efficient refrigerators and freezers that:

- ◆ have adequate refrigerator space for thawing food.
- ◆ use air-cooling rather than recirculating cooling-water systems.

Dishwashing is a water intensive process for cleaning and sanitizing.

- ◆ Use pre-rinse spray valves (1.5 gpm maximum) for dish rinsing.
- ◆ Strainer (scraper) baskets are preferred to garbage disposals (grinders). If a water-using grinder is selected, install a water-saver kit or choose a grinder that tailors the water use to the load.
- ◆ Avoid “dump and fill” dishwashing machines. Use dishwashers meeting Energy Star efficiency standards.

## *Ice Machines*

Ice machines use water for making ice and sometimes for cooling the compressor. Select:

- ◆ ice-making machines that are air-cooled, using remote heads to expel warm air outside the work space and customer areas. Air-cooled machines are preferred over cooling-tower loops.
- ◆ energy-efficient flake or nugget machines rather than cube-ice machines. If cube-ice machines are used, those that meet CEE Tier 2 efficiency standards are preferred. Tier 3 machines are even more efficient (CEE Commercial Kitchens).

## *Water Treatment*

Measures to improve the efficiency of water treatment include:

- ◆ for all filtration processes, installing pressure gauges to determine when to backwash or change cartridges, followed by backwash based upon pressure differential.
- ◆ for all ion-exchange and softening processes, setting recharge cycles by volume of water treated or using conductivity controllers.

- ◆ avoiding the use of timers for softener-recharge systems.
- ◆ using water treatment only when necessary.
- ◆ use a reverse osmosis and nanofiltration systems with the lowest reject rate for its size.
- ◆ choose distillation equipment that recovers at least 85 percent of the feed water.



## ***Floor Cleaning***

Employ these floor-cleaning efficiency practices:

- ◆ use low-flow, high-pressure nozzles on hoses or water brooms used for floor and mat washing where a flow of water is needed.
- ◆ minimize the need to use a hose as a broom by installing drains close to areas where liquid discharges are expected.

## ***Other***

Make discharge pipes easy to inspect for flow and insert visible indicators that will show if the water pressure relief or temperature relief valves have activated.

Install automatic-shutoff and solenoid valves on all hoses and water-using equipment.

Install faucets on set tubs and janitorial sinks with flows not to exceed 2.2 gpm.

TIP: Conspicuously mark fire protection plumbing so no connections will be made except for fire protection. Additionally, install flow-detection meters on fire services to indicate unauthorized water flows.

***Variable-flow aerators on faucets help conserve water in kitchen operations.***