

Restaurants & Fast-Food Outlets

Restaurants and fast-food outlets serve many varieties of food, snacks, beverages, and sometimes bakery products. In these businesses, water has many uses: as a product ingredient and for cooking, cooling, cleaning, and sanitizing.

Kitchen Equipment

Selecting energy-efficient equipment helps reduce waste heat, which has implications for water use. Because of particular practices in the restaurant and food-service business, energy-efficient equipment offers significant water savings. Choose refrigerators and freezers that have adequate refrigerator space for thawing food and use air-cooling rather than recirculating cooling-water systems.

Cooking and Serving Systems

Cooking and warming devices have many opportunities for improved water efficiency:

- ◆ select combination ovens that use no more than 15 gallons of water per hour and comply with the California energy rebate list prepared by Fisher-Nickel.
- ◆ instead of steam tables, install dry heating tables.
- ◆ return and reuse condensate for all boiler-type steam kettles.
- ◆ size steam traps for proper operation to avoid dumping condensate.
- ◆ insulate condensate-return lines.
- ◆ use pasta cookers with a simmer mode and automatic overflow-control valves. Restrict flow to a half a gallon per minute.
- ◆ use connectionless or boilerless steamers consuming no more than 3 gallons per hour.
- ◆ install in-line restrictors that reduce “dipper well” flow to under 0.3 gpm.

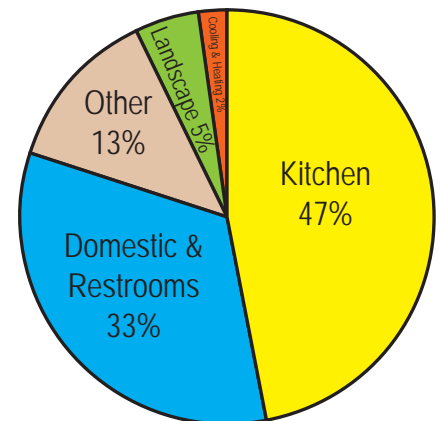
Scullery Operations

Scullery operations, including dishwashing, are water intensive.

Reduce use with:

- ◆ pre-rinse spray valves (1.5 gpm max) for dish rinsing.
- ◆ strainer (scrapper) baskets in place of garbage disposals (grinders).

Restaurants use water to create their products, as well as for cooling, cleaning, and sanitizing.



Typical water use in restaurants and fast-food outlets



- ◆ dishwashers meeting efficiency standards set by the Consortium for Energy Efficiency (CEE).
- ◆ steam doors on dishwashers.
- ◆ dishwashing equipment that meets Energy Star standards.

Ice Machines

Ice machines use water for 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 a cooling-tower loop.
- ◆ energy-efficient flake or nugget machines rather than cube machines. If cube-ice machines are used, select those that meet Energy Star standards. CEE Tier 3 machines are even more efficient.

Plumbing

Appropriate technologies include high-efficiency toilets requiring not more than 1.3 gallons per flush and urinals which flush with 1 gallon or less (no automatically timed flushing systems), as well as self-closing faucets with flows of 0.5 gallons per minute (gpm) for hand washing. If available, and where codes and health departments permit, non-potable water may be used for flushing.

Cooling and Heating Systems

Refer to the “**Office Buildings**” and “**Schools**” summaries for recommendations on evaluating cooling towers *versus* air-cooling, open- *versus* closed-loop systems, and heat and hot-water system practices.

Water Treatment Systems

Measures to improve the efficiency of water treatment include:

- ◆ for all filtration processes, install pressure gauges to determine when to backwash or change cartridges, then backwash based upon pressure differential.
- ◆ for all ion-exchange and softening processes, set recharge cycles by volume of water treated or based upon conductivity controllers.
- ◆ avoid the use of timers for softener recharge systems.



When planning scullery operation installations, strive to maximize efficiency, while minimizing water and energy consumption.

Floor Cleaning

Floor cleaning may use wet methods, but wasteful open hoses are discouraged. Install drains close to areas where liquid discharges are expected. Arrange equipment for easy use of a mop and squeegee system or floor-cleaning machine. Install self-closing nozzles, limiting flow to 5 gpm on washdown hoses.

Submetering

Separate metering of individual units (tenants), water-using systems, or building areas — is recommended where possible in order to ensure that the costs of water use and, where feasible, wastewater disposal are equitably dispersed and accounted for accurately. Reflecting actual use and costs often offers a reliable incentive for water-use efficiency.

Other

Additional water savings can be realized by using:

- ◆ automatic-shutoff and solenoid valves on all hoses and water-using equipment.
- ◆ faucets on set tubs and janitorial sinks with flows not exceeding 2.2 gpm.

Refer to the summaries for **“Bakery/Pastry Shops,” “Industrial Bakeries,”** and **“Water Features, Pools, and Landscapes”** for additional water-efficiency measures specific to restaurant and food-service businesses.

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



Refrigerators should have adequate space for thawing food. Avoid thawing food under running water.