

Bakery & Pastry Shops

Bakery shops not only bake bread and pastry products, but they are similar to restaurants, often serving a variety of sandwiches, beverages, and other foods. Water has many uses: as a product ingredient, to heat and cool products, and to clean and sanitize floors, processing equipment, containers, vessels, and the raw food products.

Standards and Practices

Principles for designing and building a facility that has a reduced requirement for water include:

- ◆ design the facility for ease of cleaning.
- ◆ provide adequate metering, including submetering at all major water using areas and for process control.
- ◆ consider all possible opportunities for water recovery and re-use or alternative water supplies, such as filtration and membrane processes and capturing condensate drain water from air-conditioning and refrigeration systems.
- ◆ design for minimal or no water use.
- ◆ use product and by-product recovery systems.

Kitchen Equipment

Select energy-efficient refrigerators and freezers that have adequate refrigerator space for thawing food and use air-cooling rather than recirculating cooling-water systems.

If combination ovens are used, select those that use no more than 15 gallons per hour and comply with the California energy rebate list prepared by Fisher-Nickel.

If steamers are used, select those that are either connectionless or boilerless and consume no more than three gallons of water per hour.

Dishwashing is a water-intensive process for cleaning and sanitizing.

- ◆ Use pre-rinse spray valves (1.5 gpm maximum) for dish rinsing.
- ◆ Install strainer (scraper) baskets instead of garbage disposals (grinder). If a water-using grinder

Many bakery and pastry shops now offer more than baked goods and are much like small restaurants with a variety of product offerings.



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.
- ◆ Install steam doors to reduce evaporation.

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 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).

Heating Systems

Steam boilers and hot-water boilers provide heat and hot water. Closed-loop systems return water and steam condensate to the boiler for reuse, saving both energy and water. Open-loop systems expend the water or steam without return to the boiler. Several water efficiency measures are available:

- ◆ reduce plumbing leaks due to repeated opening of water temperature- and pressure-relief valves (TPRVs).
- ◆ make discharge pipes easy to inspect for flow, and insert visible indicators of valve activation.

Water Reuse and Recycling

Water is used as a heat-transfer agent in a variety of applications. This water remains relatively clean and is an excellent source of water for reuse.

Water Treatment

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 use conductivity controllers.
- ◆ avoid the use of timers for softener-recharge systems.
- ◆ use water treatment only if and when necessary.

Dishwashing is a water intensive practice, although it is necessary for cleaning and sanitizing. Run only full loads to conserve water and energy.



Plumbing

Use high-efficiency toilets requiring not more than 1.3 gallons per flush and urinals which flush with 1 gallon or less. Use no automatically timed flushing systems. Use self-closing faucets with flows of 0.5 gpm for hand washing. If available, and where codes and health departments permit, use non-potable water for flushing.

Floor Cleaning

Employ these floor-cleaning efficiency practices:

- ◆ 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

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.

