

Industrial Laundries & Dry Cleaners

Industrial laundry equipment and processes serve many applications, from dry-cleaning establishments, to institutions and commercial facilities for hotels, prisons, hospitals, nursing homes, and athletic programs. Such laundries offer uniforms, diaper, and linens services to the same set of users as on-premise operations.

Commercial dry-cleaning operations are changing since chemical cleaning agents are being phased out due to air-quality concerns. Replacement technologies include wet cleaning, silicon-based technology, and supercritical carbon dioxide. Wet cleaning is a laundry operation using water as the cleaning agent. If air cooling is used, the other two technologies can use no water, so they should be encouraged.

Standards and Practices

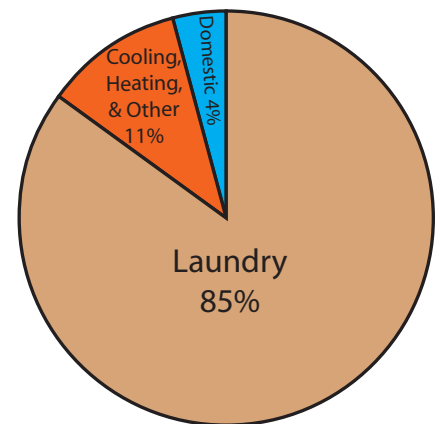
Industrial laundry operations use multi-load washer extractors with numerous control settings and load capacities up to hundreds of pounds. Washer-extraction technology has high water-efficiency capability (2 to 4 gallons per pound), depending upon the degree of soil of the goods being cleaned. Tunnel washers are major pieces of equipment that operate on a continuous (rather than batch-load) basis to wash very large volumes of soiled goods. The high efficiency of tunnel washers invites their use where large volumes of laundry can be sustained.

The majority of large, multi-load machines are hard-mount or solid-mount machines that are bolted to the floor. All multi-load washers can be set to operate at a number of cycles, including flush, wash, bleach, rinse, scour, and sizing. Water levels can be set differently for each cycle, so water use varies greatly depending upon the setting. For water and energy efficiency, specify that washers be preset to meet the water factor of 8.0 or better.

Heating Systems

Hot-water boilers (heaters) provide hot water to clothes-washing machines. No water is returned to the water heater for reuse. The two major water-saving actions related to hot-water boilers are water-efficient washers and preventing plumbing leaks.

Large tunnel washers operate on a continuous basis, where volumes of laundry are very large, for example, hotels and hospitals.



Typical water use in industrial laundries



SmoothFlow® batch tunnel washer system by Braun <http://www.gabraun.com/equipment.aspx?id=22> G.A. Braun, Inc.

Seek opportunities for water recovery and reuse to save energy, water, and detergent, while reducing harmful air emissions.



Install temperature gauges and make-up meters on cold-water feed lines and locate them to be clearly visible to operators. Temperature- and water-pressure-relief valves (TPRVs) may open or leak. Make discharge pipes easy to inspect for flow, and ensure that there are visible indicators of whether a valve has activated.

Water Treatment

If water softeners are used, equip all such systems with controllers that activate based upon the volume of water treated. Alternatively, some controllers actually measure water hardness. Use water softeners and other treatments only when necessary, and don't recharge softener systems based upon a timer. Where filtration systems are employed, require pressure gauges to determine when to backwash or change cartridges, and backwash based upon pressure differential.

Water Reuse and Recycling

Depending upon the level of treatment, warm-water-recycling equipment can recycle from 10 to 90 percent of the wash water, while conserving energy. Ozone equipment reduces water use by 10 to 25 percent and can significantly reduce energy and chemical use.

To save energy, water, and detergent and reduce air emissions, new facilities should seek possible areas of water recovery and reuse.

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.

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.

Floor Cleaning

Floor cleaning may use wet methods, but wasteful open hoses are discouraged. Alternative methods include installing self-closing nozzles that limit flow to 5 gpm on washdown hoses. Employ these floor-cleaning efficiency practices:

- ◆ use low-flow, high-pressure nozzles on hoses or water brooms 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.

Submetering

The nature of the technology makes these facilities water-intensive, and water meters should be employed in each major segment of the process. Separate metering of individual 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

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, flow-detection meters should be installed on fire services to indicate unauthorized water flows.

Air-quality concerns are causing the commercial dry-cleaning industry to change technologies and processes.



Large open pocket, end-loading washer/extractor



Dry cleaning machine