



WATERLESS URINALS IN AIR FORCE FACILITIES

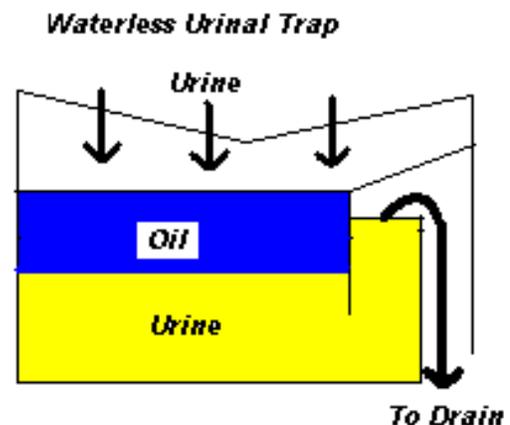
SYNOPSIS

Waterless urinals, sometimes called “no-flush,” “touch-less,” or “waterfree” urinals, have had mixed success in Air Force facilities. This fact sheet provides some lessons learned that designers and facility managers must address when waterless urinals are being considered. When compared to conventional urinals, waterless urinals save about one gallon of water each time they are used. For high-use facilities, this can add up to savings of over 20,000 gallons per year per urinal. Use of any trade names in this fact sheet is not an endorsement of any product.

HOW WATERLESS URINALS WORK

Several different manufacturers make waterless urinals. They have a special oil-filled trap that allows urine to pass through, while sealing out sewer gasses and odors.

While the designs of these traps vary, there are several characteristics these traps have in common: they use an immiscible liquid, typically mineral oil (but sometimes vegetable oil or an insoluble alcohol) that allows urine to pass through the trap yet prevent exposure of urine or sewer gases to air to prevent odors; and they require special care and maintenance procedures.



MAINTENANCE & CUSTODIAL ISSUES

Because these traps are not flushed with water after each use like a typical urinal, they require some unique janitorial and maintenance procedures.

- Waterless urinals are not designed to receive any liquid other than a steady stream of urine. Dumping a large cup of water in the urinal can flush the oil from the trap therefore it is important that building occupants know this limitation. Detergent of any kind will emulsify the oil, washing it from the trap. The loss of oil for either reason will cause significant odor problems until the oil is replaced. These urinals are a major challenge for custodial contractors. The janitorial staff cannot clean these urinals in the normal fashion, using quantities of water and detergent; or emptying a mop bucket into them. They must be cleaned similar to a countertop, using only a spray cleaner and paper towel, or a damp sponge. Abrasive cleaners should never be used on waterless urinals. Abrasive cleaners can

remove special coatings, and in the case of fiberglass or plastic urinals, they can scratch the finish. These issues require all janitorial personnel to be specifically trained on the required cleaning method. One untrained custodial employee or building occupant can cause widespread problems with this type of urinal. Some locations have installed a sign on each urinal stating that to avoid odor problems, only urine should be put in the urinal.

- Since the traps are not flushed with a large volume of water, sediments and debris build up in the trap. If the trap is not replaced, it will eventually become plugged. Most traps are designed for quick and easy replacement and are designed to last three months to a year between replacements. Replacement is usually done with a special wrench that comes with the new trap, and replacement typically takes 30 to 90 seconds. The problem in Air Force applications is getting someone to actually do the trap replacement. Custodial contractors often will not perform this job unless a contract modification is made to include this task. Building occupants often won't even consider doing it. Civil engineering personnel won't remember to do it unless it is added to the Recurring Work Program (RWP). The bottom line is that before these types of urinals are installed, a reliable long-term method for replacing the traps must be in place.
- If the urinals are installed under an Energy Savings Performance Contract (ESPC), it is possible to include the trap replacement as a part of the 10-year maintenance agreement with the ESPC contractor. However, including this requirement will affect long-term costs and payback.

COST EFFECTIVENESS OF WATERLESS URINALS

The water saved by waterless urinals can make them cost-effective due to reduced water and sewage charges. However, when determining the savings, the additional cost of the custodial procedures and trap replacement costs must be considered.

In new construction, the cost of waterless urinals is much less than conventional urinals because water lines and flush-valves are not necessary. The lack of flush-valves has another economical advantage: flush-valves frequently malfunction and require costly periodic maintenance and/or replacement, in addition to the water lost when a flush-valve fails to shut off.

CONCLUSION

Waterless urinals can be a cost-effective alternative to conventional flush-valve urinals in Air Force facilities, but careful consideration must be given to the custodial, user, and trap replacement issues. Failure to consider these critical factors can cause significant problems and building occupant dissatisfaction with waterless urinals. To avoid problems with these types of urinals requires that the cleaning staff, maintenance personnel, and users all understand the operation and limitations of waterless urinals.

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