



Vacuum Plumbing Systems

13818 Oaks Avenue ♦ Chino, CA 91710 ♦ USA

(800) 591-9920 ♦ 909-902-1141 ♦ Fax 909-902-5041

Simple Estimated Water Savings Calculation for Typical Restaurant Using Vacuum Flush Toilets

The calculations below are intended to provide an estimated overview of water and sewage savings using vacuum flush toilets compared to conventional plumbing fixtures in a typical restaurant serving approximately 715 clients per day. This estimate does not include staff bathroom use.

This estimate is also made without re-cycled water use for toilet flushing. Use of re-cycled grey water from hand wash basins and lavatories for toilet flush would further increase annual water savings.

Summary:

Based on the assumptions listed below, use of vacuum flush toilets alone would provide an estimated supply water and sewage discharge volume savings of approximately 56% over conventional fixtures or the costs associated with 115,125 gallons water and sewage processing costs annually.

Assumptions:

- Average service 5,000 clients per week
- The water supply requirement used for bathroom water closets and urinals in the calculations below are based on conventional low flush fixtures; client usage rate of approximately 70%; client population of approximately 50% male and 50% female
- Male use of plumbing fixtures is estimated at 85% for urinals and 15% for water closets. Note: ASPE norms and guidelines indicate 75% for typical workplace scenarios; however, for the purposes of this estimate, this guideline has been increased to 85%

Water use calculations using conventional low flush gravity drainage fixtures

1. Males

Urinals: Est. 1487 flushes per week x 0.5 gallons per flush = 744 gallons of water per week

Water closets: Est. 263 flushes per week x 1.6 gallons per flush = 421 gallons of water per week

2. Females

Water closets: Est. 1750 flushes per week x 1.6 gallons per flush = 2,800 gallons of water per week

Total gravity drainage water demand and sewage output = 3,965 gallons per week, or a projected annual water supply and sewage output of 206,180 gallons combined for men's urinal and WC and women's WC fixtures.

Water use calculations using vacuum flush water closets and conventional urinals

1. Males

Urinals: Est. 1487 flushes per week x 0.5 gallons per flush = 744 gallons of water per week

Water closets: Est. 263 flushes per week x 0.5 gallons per flush = 132 gallons of water per week

2. Females

Water closets: Est. 1,750 flushes per week x 0.5 gallons per flush = 875 gallons of water per week

Total vacuum fixture water demand and sewage output = 1,751 gallons per week; or a projected annual water supply and sewage output of approximately 91,052 gallons for men's urinal and vacuum WC and women's vacuum WC fixtures.
