

## WATERSAVE: Water Reclamation System Design Tool

### INTRODUCTION

In recent years the demand for water has increased. Access to this resource is becoming much more expensive, as is the treatment of effluent to meet more stringent environmental standards. This has a direct bearing on the present state of infrastructure. With the water systems in many cities at or reaching their limits in terms of capacity and life expectancy, decisions must be made to retrofit and expand these systems at enormous capital costs, or to design alternative water management strategies to replace them.

Present residential water conservation initiatives, including the use of water efficient appliances or personal practices, may not significantly reduce the potential costs of new infrastructure. Rather than pursuing new sources of water supply, CMHC is investigating methods to recycle water supplies of suitable quality at a low monetary and environmental cost, and decrease the need for expansion of treatment and distribution systems. While the present water supply to each home is treated to a high level of purity, many household uses for water could be met with non-potable, less costly water. Technologies exist which permit recycling of a significant proportion of domestically used water. For example, ex-bath water (light grey water) may still be clean enough after simple treatment for re-use such as toilet flushing. WATERSAVE, a new user-friendly computer program, is intended to facilitate the design of water reclamation systems.

### THE WATERSAVE PROGRAM

WATERSAVE is an interactive, MS Windows based computer program that has been developed for CMHC by the Centre for Water Resources Studies, Dalhousie University. It is a tool for designers of innovative water systems that include water conservation, use of rain water as a complete or supplementary source, wastewater recycling and reuse.

The program can depict water and wastewater flows in a residential system, calculate concentrations of a given quality parameter throughout the system, and determine the distribution of heat and water temperatures in the system. It can also assist in determining the capacity and efficiency of a rain water cistern system as an alternative water source.

WATERSAVE will be of interest to engineering companies involved with the planning and design of water recycling systems, and municipal engineers concerned with water conservation measures in relation to supply-side water management.

## Research Highlight

WATERSAVE: Water Reclamation System Design Tool

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### Housing Research at CMHC

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