



**UNIVERSITY OF
CAMBRIDGE**

Department of Engineering

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

Bringing eco-innovations into service: the challenges in adopting waterless urinals in the commercial sector

One critical factor contributing to our global water crisis is the increasing demand for fresh water by a growing population. Adopting water-efficient technologies is among several important solutions for commercial water users. As a partial solution to water conservation efforts, waterless urinal technology was first introduced commercially in California in the early 1990s. Since their implementation, waterless urinals have been identified as one potential solution among several water-saving strategies. However, the commercial adoption of this technology has reached less than three (3) percent of installed urinals, primarily due to concerns reported by early adopters. To determine the obstacles and objections associated with waterless urinal installation and operation, this research used a heuristic approach. This approach was used to explore perspectives and insights from a wide range of research participants, in various sub-sectors of the commercial building industry. The findings of this research revealed several key challenges illustrating the insignificant market penetration of this new technology. The difficulties most often cited include: odour, maintenance, and incompatibility with existing plumbing systems. Furthermore, interviews conducted through this research revealed that the low-priced water, unforeseen sustainability implications, and current trends in the commercial building industry significantly depressed market acceptance. This research, then evaluated the relative effects of emerging questions and concerns explicitly influencing waterless urinal adoption. In summary, commercial sector consumers were discouraged from adopting water-related technologies due to cost pressures. Moreover, landfill waste generated by required operational, single-use components of these urinals continues to be a problem, especially in light of recent global efforts to reduce plastic waste. Unintended consequences initiated by water efficiency and conservation may also lead to serious public health risks, while triggering unexpected and premature infrastructure decline. None of the identified concerns exist in isolation, rather, they are dynamically interdependent.

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