



## Water Efficiency Research Committee Projects - 2009

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### **Project No. 7**

**Project Name:** Commercial Buildings Drainline Systems Study

**Description:**

With the enactment of the Energy Policy Act of 1992, all toilets manufactured in or imported into the United States were required to flush no more than a maximum average of 1.6 US gallons, effective January 1, 1994 for residential models and January 1, 1997 for all models. At that time, concern for drainline transport efficacy was voiced by many in the plumbing trade and those in various professional associations. However, in response to significant consumer complaints about poor flush performance, early reporting and research on 1.6-gpf/6.0-lpf models focused primarily on the flush performance (waste removal). Since that time, manufacturers have made great strides in improving flushing performance. However, intermittent and anecdotal complaints of drain line waste transport problems were not thoroughly researched and were largely attributed to older or faulty sanitary drain lines. The advent of toilets flushing at as little as 0.8-gpf/3.0-lpf has focused even more attention on drainline carry issues.

The Plumbing Engineering Research Coalition<sup>1</sup> (PERC) seeks funding to conduct scientific research to determine the effect of reduced flows into domestic and commercial plumbing systems. Due to the complexity associated with the number of variables in "real world" plumbing systems, research is required on several fronts, specifically; computer modeling studies, laboratory testing and field studies conducted on actual plumbing systems. A complete scope of work is available upon request.

NOTE: This is one of two major areas of study being contemplated by the PERC under the terms of the AWE-IAPMO-PHCC-PMI-ICC Memorandum of Understanding.

**Type of Research:** Three Elements: Field, Laboratory, and Computer Modeling

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<sup>1</sup> The PERC consists of 5 organizations with vital interests in plumbing systems performance: International Association of Plumbing and Mechanical Officials (IAPMO), the International Code Council (ICC), the Plumbing Manufacturers Institute (PMI), the Plumbing Heating Cooling Contractors National Association (PHCC), and the Alliance for Water Efficiency (AWE).

**Expected Term to Complete the Research:** Approximately 24 months

**Estimated Cost Threshold:** High

**Current Status:** Unfunded. To date, scoping and other documents have been prepared in anticipation of funding applications to various entities. In addition, the U.S. Navy Facilities Command has expressed interest in being an active participant in the field study by providing a variety of active facilities of various ages and technical support to this study element. The Navy Facilities Command relationship and participation level remains to be defined.