



**INTERNATIONAL ASSOCIATION OF
PLUMBING AND MECHANICAL OFFICIALS**

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May 23, 2014

California Energy Commission
Docket's Office, MS-4
Re: Docket Number 14-AAER-1
1516 Ninth Street
Sacramento, CA 95814-5512
Attention: Mr. Tuan Ngo, P.E.

Via email: docket@energyca.gov

California Energy Commission

DOCKETED

14-AAER-01

TN 73093

JUN 03 2014

Dear Mr. Ngo,

The International Association of Plumbing and Mechanical Officials (IAPMO) appreciates this opportunity to provide comments to the California Energy Commission regarding Docket 14-AAER-1, Water Appliance Efficiency. Founded in 1926, IAPMO is the preeminent code development association for plumbing, mechanical and solar codes. The membership of IAPMO is comprised of plumbing and mechanical inspectors, engineers, code officials, plumbing and mechanical installers and contractors, water and energy efficiency experts, and manufacturers of plumbing, mechanical and building products – all disciplines that will be impacted as a result of CEC's rulemaking.

Our comments are as follows:

IAPMO supports the CEC Staff recommendations for regulatory efficiency levels for toilets, urinals, faucets, and replacement valves as shown below:

Toilets – 1.28 gpf max. and 350 gram extraction pass / fail requirement per ASME A112.19.2/CSA B45.1-2013.

Urinals – 0.5 gpf max.

Lavatory faucets – 1.5 gpm max. @ 60 psi

Kitchen faucets – 1.8 gpm max. @ 60 psi with an allowable 2.2 gpm max. override for pot filling

Commercial faucets – 0.5 gpm max. @ 60 psi

The above requirements shall have an effective date of one year after adoption by the CEC.

Replacement flushometer-valves for toilets – 1.6 gpf max.

Replacement flushometer-valves for urinals – 1.0 gpf max.

The above requirements shall have an effective date of January 1, 2019.

The above requirements are consistent with critical industry standards and with the US EPA's WaterSense specifications for plumbing products. Even more importantly, products



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manufactured to these efficiency levels have been proven to deliver excellent end user satisfaction.

IAPMO has reviewed the recommendations from the California Investor Owned Utilities (IOU's). We are extremely concerned with their recommendations to increase the minimum toilet extraction requirement threshold to 600 grams and to mandate 0.125 gpf urinals in California. These recommendations are problematic on many levels, as detailed below:

The recommendation for a minimum 600 gram extraction requirement

- No evidence has been provided that shows that double flushing of toilets currently meeting the 350 gram extraction pass / fail requirement per standard ASME A112.19.2/CSA B45.1-2013 and the EPA WaterSense requirements (this extraction test is referred to as the MaP test in the CEC documents) is a real world problem that requires tinkering. Quite to the contrary, consumer feedback on WaterSense listed toilets has been excellent.
- The concept that a toilet that meets a 600 gram minimum requirement will require less double flushing than a toilet that meets a 350 gram requirement is flawed. There are many reasons that consumers double flush, including:
 - removal of waste marks on the walls of the bowl above the water level
 - toilet paper adhered to the walls of the bowl above the water level
 - inadequate water exchange leaving a "slurry" of waste behind.

Not only will increasing the minimum requirement to 600 grams not address these problems, they will actually make them worse as manufacturers will be forced to divert more water from the rim punchings to ensure increased bulk removal capability. As a result, not only will double flushing not be reduced, it is possible, perhaps even likely, that it may increase.

- Many excellent products will be unfairly removed from the California marketplace, significantly impacting consumer choice.
- Manufacturers will be required to retest models to the new 600 gram threshold at great cost. This would be a complete waste of resources and money. It should be noted that IAPMO R&T Labs is part of the IAPMO Group. It would be easy for IAPMO to stay silent on this issue and have our Lab reap the financial benefit of this required testing. However, the IAPMO Group's priority is to help ensure that regulatory requirements for plumbing products are based on good science and work to ensure health and safety, water and energy efficiency, and consumer satisfaction. The IOU's proposal to increase the performance level to 600 grams fails to meet these objectives.



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The recommendation for a maximum urinal consumption level of 0.125 gpf:

- Drainline blockages and installation problems related to odors have been associated with non-water consuming urinals. The Uniform Plumbing Code (UPC) has addressed these issues by requiring that water lines be installed behind the walls in bathrooms so that if building owners wish to have the non-water consuming urinals replaced with flushing urinals, the water lines would help facilitate the retrofit.
- There has been inadequate experience with 0.125 gpf urinals to determine if that small volume of water is enough to resolve the above concerns. IAPMO recommends that consideration of mandating 0.125 gpf urinals be tabled until field experience and research can provide insight regarding the efficacy of that consumption level.
- Urinal drainline blockages are costly and disruptive. Generally considered one of the “nastiest” jobs in plumbing, clearing blocked urinal lines produces terrible odors in a building that often results in temporary closure of areas adjacent to the involved bathrooms for the duration of the clearing process.

The recommendation for a maximum faucet flow rate of 1.0 gpm:

- At the May 22nd meeting, a proposal was made to consider lowering the flow rate of lavatory faucets to 1.0 gpm. This is problematic on many levels.
- As water moves through potable water pipes, the velocity of the water works to scour the interior of the pipe walls to remove biofilm that grows in the pipes and which harbor opportunistic pathogens such as legionella. Potable water pipes in buildings are already significantly oversized due to flow rate and consumption level reductions associated with plumbing fixtures, fixture fittings and water consuming appliances that have been applied in recent years. Reducing maximum flow rates to 1.0 gpm will reduce the scouring action provided by faucet use by 50% from the already very low WaterSense levels. Legionellosis outbreaks are increasing globally at an alarming rate and the reduction of water velocities in potable water pipe is viewed by researchers and forensic engineers as a contributing factor. This is an area of great concern throughout the plumbing industry and we urge the Commission to not adopt this recommendation.
- Reducing flow rates in faucets to 1.0 gpm will drastically increase hot water delivery times and will result in wasting both water and energy. Heat losses will significantly increase as water slowly moves between the heat source, typically a water heater or boiler, to the point of use. In many instances, hot water delivery times will be so severe that the user will ultimately decide to use the cold water residing in the pipes instead, rather than wait for the hot water to arrive, resulting in a waste of water and a total waste of energy.
- Consumer acceptance of faucets employing such low flow rates is likely to be terrible due to the hot water delivery time increase discussed above and the increased time



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needed to do water volume dependent activities that do not impact total water use, such as filling a lavatory wash basin (bathroom sink) for washing delicate garments.

Damage to the US EPA WaterSense Brand and water efficiency programs:

- IAPMO is also concerned about the damage that could result to the US EPA's WaterSense program if the CEC adopts the IOU's recommendations. This would send a signal that the WaterSense specifications are inadequate and do not provide for the highest levels of consumer satisfaction. This would be a travesty in light of the excellent consumer feedback associated with all WaterSense labeled products. The WaterSense program specifications for plumbing are developed through a rigorous process that seeks input from all stakeholders. The results of this approach are evident in the success of the program.

Rather than focus on the CASE Team recommendations, IAPMO recommends that the CEC consider aggressive measures to seek out and replace pre-EPA level toilets, faucets and showerheads that remain installed and in use in California. Going after these water-guzzling fixtures and fixture fittings will provide for greater water and energy efficiencies without the health and safety and plumbing system efficacy risks associated with the provisions discussed above.

Thank you again for the opportunity to comment on the CEC's Water Appliance Efficiency program. The IAPMO Group headquarters are located in Ontario, CA. As a result, we are keenly aware of the need to aggressively address California's current drought. However, we urge the CEC to consider the systemic aspects of plumbing and the serious unintended consequences that can result when ill-advised regulations are adopted and put into force.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Peter DeMarco". The signature is fluid and cursive, with the first name "Peter" and last name "DeMarco" clearly distinguishable.

Peter DeMarco - Senior Vice President of Advocacy, Research and Program Development
The IAPMO Group