



California Energy Commission

DOCKETED
12-AAER-2C

TN 71717

JUL 26 2013

July 26, 2013

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 12-AAER-2
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.ca.gov

RE: Invitation to Submit Proposals - 2012-2013 Appliance Efficiency Rulemaking Water Appliances – Docket No. 12-AAER-2C

Dear Commissioners,

Plumbing Manufacturers International (PMI) appreciates this opportunity to submit our proposal to the California Energy Commission (CEC) regarding its order instituting rulemaking on water appliances [water closets, urinals and faucets]. PMI is the international, U.S.-based trade association representing 90% of U. S. plumbing products sold in the United States. It has made the promotion of water efficiency a top priority and has included it in its mission statement¹. PMI's members are industry leaders in producing innovative water efficient plumbing technologies relied upon to meet indoor water conservation goals.

PMI acknowledges and appreciates the ultimate goal of this rulemaking – as set forth in the Order Instituting the Rulemaking Proceeding – to reduce excessive energy and water consumption by regulated appliances in the state.

This proposal follows PMI's submission of comments during the Invitation to Participate [ITP] phase of Docket No. 12-AAER-2C on Water Appliances, the participation of PMI and several of its member companies in the April 4 WebEx Meeting, as well as a number of informal conversations.

The formation of PMI's proposal is within the context of our commitment to increasing water efficiencies to produce safe, sanitary, efficient and reliable products. This includes PMI's continued engagement in federal and state initiatives towards this objective. A summary of this context is as follows:

- PMI has been actively engaged in the development of water efficiency regulations since the implementation of the Energy Policy Act regulations in 1992

¹ PMI's Mission: To promote the water efficiency, health, safety, quality and environmental sustainability of plumbing products while maximizing consumer choice and value in a fair and open marketplace. To provide a forum for the exchange of information and industry education. To represent openly the members' interests and advocate for sound environmental and public health policies in the regulatory/legislative processes. To enhance the plumbing industry's growth and expansion.

- PMI is a founding member of the US Environment Protection Agency's (EPA) WaterSense program and continues our membership in this highly successful voluntary partnership between government and industry to promote water efficiency
- PMI has also been supportive of state legislation to promote and promulgate water efficiency measures for California, such as AB 715 and SB 407 (Appendix A and B)
- PMI efforts with the State of California include the recently completed work with the Department of Housing and Community Development (HCD) and Building Standards Commission (BSC) on the CALGreen codes for 2014
- PMI's rationale for proposing water efficiency levels ***to be placed into Title 20*** by the CEC include work already completed for multiple state and federal water efficiency efforts, including those efforts with government partners in California.

In outlining the boundaries which define the capabilities of water closets, urinals and faucets, unintended consequences have determined the limits of water efficiency levels with plumbing systems as they are built and maintained today. Listed below are some of the issues that define water efficiency limits for most products and installations:

Water closets/urinals

- *Impact of HETs and HEUs on large systems*
- *Need for field data on implementation of HETs/HEUs*
- *Impact of greywater and rainwater use on materials and performance*
- *Identification of separate requirements between commercial and residential*

Kitchen faucets

- *Health and safety issues*
- *Stagnation and drain line carry impacts*
- *Water needs for food waste disposers*
- *The impact of debris in smaller flow restrictors*
- *Consumer satisfaction*

Lavatory faucets

- *Usability differences between residential and commercial*
- *P-trap sediment buildup and the chemicals used in lavatory sinks*
- *Time to get hot water / system impacts*
- *Hand washing efficacy / non-water based cleaning*
- *Biofilm buildup and maintenance procedures*

PMI and its members continue to work on actions that can be taken to address these and other unintended challenges through the International Association of Plumbing and Mechanical Officials (IAPMO) Green Plumbing's and Mechanical Code Supplement and the International Code Council's (ICC) International Green Construction Code. These green committees are the proven, objective and inclusive stewards for effectively establishing the code requirements to implement changes for safe and sanitary water efficiency levels.

Since 1992, PMI and its members have been working with state and federal agencies to establish water efficiency levels for plumbing fixtures and fixture/fittings to meet market needs. PMI was a founding member of the EPA WaterSense program and still remains a collaborator and strong supporter of this voluntary program. The WaterSense voluntary water efficiency level has helped consumers save a cumulative 487 billion gallons of water and over \$8.9 billion in water and energy bills. By the end of the first five years in 2012, reductions of 64.7 billion kWh of electricity and 24 million metric tons of carbon dioxide were achieved through the use of WaterSense labeled products.

PMI was instrumental in the creation and promulgation of the provisions within AB 715 (Laird, Chapter 499, Statutes of 2007) to reduce water consumption of high efficiency toilets (HET) to 1.28 gallon per flush (gpf) and high efficiency urinals (HEU) to 0.5 gpf. This law set levels of sales for high efficiency water closets and urinals starting in 2010 and goes into full effect for all sales of these products on January 1, 2014. All HETs and HEUs sold in California will meet these levels starting next January 1st. The PMI letter urging enactment of AB 715 is attached as a reference.

PMI also supported the promulgation of SB 407 (Padilla, Chapter 587, Statutes of 2009) which will require the replacement of non-water conserving plumbing fixtures. This bill will positively impact market penetration of high efficiency plumbing products in commercial and residential properties built prior to 1994 with water-conserving fixtures in single family residences by 2017 and in commercial and multi-family properties by 2019. The PMI letter urging enactment of SB 407 is attached as a reference.

PMI has also been working closely with the staff at the California Department of Housing and Community Development (HCD) and the Building Standards Commission (BSC) to establish water efficiency levels for the 2013 CALGreen section of the California Building Code which goes into effect on January 1, 2014. Letters of support (appendices C and D) for the CALGreen Building Code resulted from many meetings with HCD and BSC staff discussing Title 24 and the proposed water efficiency levels for the next revision of the California State Building Code.

It is important to note that the standards established by AB 715, SB 407 and CALGreen represent significant new efficiencies and the industry is expending significant resources to ensure compliant products.

PMI Recommendations:

PMI proposes that the water efficiency levels in AB715, SB 407 and CALGreen be incorporated into the CEC Title 20 requirements as these pending new levels have been comprehensively analyzed, scrutinized and vetted by regulators and industry during the last two years. The levels can be summarized as follows:

- Water Closets – 1.28 gpf
- Water Closets (dual flush, performance equal to the average of 1 large and 2 small flushes) – 1.28 gpf
- Urinals – 0.5 gpf

Since AB 715 allowed a three year period to phase in the requirements of HETs and HEUs, we would need a minimum of two years to phase in the below requirements for faucets in the state of California to accommodate the existing inventory and have compliant products available.

- Residential Lavatory Faucets – 1.5 gpm at 60 psi
- Public Lavatory Faucets – 0.5 gpm at 60 psi
- Metered Public Lavatory Faucets – 0.2 gal/cycle
- Kitchen Faucet – 1.8 gpm at 60 psi / optional momentary flow - 2.2 gpm at 60 psi

There will be significant new water savings attributable to these changes. The total urban water use (indoor and outdoor) in California is approximately 2.9 trillion gallons per year (Pacific Institute, 2000), water closet use in California is approximately 196 billion gallons per year (California Urban Water Uses, 2005) and faucet use in California is approximately 171 billion gallons per year (California Urban Water Uses, 2005).

Using a 20 year life for faucets and 40 years for water closets, the impact of the move to these efficiency levels will save approximately 5.3 billion gallons of water per year for new construction and sales in California.

PMI also proposes that the California Energy Commission consider additional actions that can be taken to address the most significant opportunity to accomplish real water and energy savings: legacy water closets and faucets that can be several decades old and use ten times the amount of water as products compliant with current standards. Efforts to replace legacy water closets and faucets in California will save approximately 160 billion gallons of water per year with an early retirement/early replacement program. Local programs can be enhanced and expanded to achieve important and long-lasting savings.

The methods of creating high efficiency plumbing products are historically different than those used in the establishment of efficiencies for electrical products, and the metrics used and boundaries considered for the establishment of water efficiency levels for plumbing products are different than those used for electrical products.

Whereas many legislatively enacted rules have created lengthy technical support documents in assessing options and comparing the economic impacts of these options, this has not been done within any water efficiency rules promulgated to date. This resulted in a public backlash towards manufacturers, regulators and environmental groups after the 1992 Energy Policy Act (EPAAct) levels were set in 1992. It has taken a significant effort to regain the public trust after products compliant with EPAAct were initially manufactured. The resulting “unintended consequences” were reflected in water closets that did not perform to consumer expectations. These levels were based on percentage reductions without technical support documents or economic impact studies. The collaboration on WaterSense has resulted in a dramatically different and positive outcome.

In closing, PMI would like to thank the California Energy Commission for the opportunity to provide our proposal for the regulation that can be enacted in Title 20 through Docket 12-AAER-2C on Water Appliances. Our partnership with the regulatory and stakeholder communities in the State of California to promote water efficiency will continue to produce safe, sanitary, efficient and reliable products.

Sincerely,

Len Swatkowski
Technical Director
Plumbing Manufacturers International
1921 Rohlwing Road – Unit G
Rolling Meadows, IL 60008
lswatkowski@pmihome.org

cc: Barbara Higgs, PMI, Executive Director
PMI Board of Directors

PMI MEMBERS INCLUDE:

American Standard Brands, Inc. * Amerikam, Inc. * Bradley Corporation * BrassCraft Mfg. Co. * Chase Brass & Copper Company * CSA International * Delta Faucet Company * Dornbracht Americas * Duravit USA * Elkay Manufacturing Company * Fisher Manufacturing Company * Fluidmaster, Inc. * Hansgrohe, Inc. * International Association of Plumbing and Mechanical Officials * InSinkErator * Kohler Company * KWC America, Inc. * Lavelle Industries * LSP Products * Moen Incorporated * Mueller Brass Company * NEOPERL, Inc. * Pfister * Sloan Valve Company * Speakman Company * Symmons Industries Inc. * T & S Brass and Bronze Works, Inc. * TOTO USA * VitrA USA * Water Pik * WCM Industries, Inc.

APPENDIX A



September 21, 2007

The Honorable Arnold Schwarzenegger
Governor of California
State Capitol
Sacramento, CA 95814

AB 715 [Laird] – Request for Signature

Dear Governor Schwarzenegger:

The Plumbing Manufacturers Institute (PMI) urges you to sign into law AB 715 [Laird], legislation that proposes a reasonable and workable transition to high efficiency toilets and urinals.

PMI is the trade association of plumbing products manufacturers. Our member companies produce most of the nation's plumbing products. The Institute functions as a sounding board for its members, a source for industry and market information, and as a coordinating and decision-making body for dealing with industry issues. PMI is active in many arenas as it helps develop and maintain standards and codes, and works closely with government agencies at all levels – federal, state and local. Membership in PMI is open to manufacturers of plumbing industry products including potable water supply system components, fixture fittings, waste fixture fittings, fixtures, flushing devices, sanitary drainage system components, and plumbing appliances, which are marketed and sold within the territorial limits of the NAFTA countries.

PMI supports the provisions of AB 715 that have been included at our request in regard to a market transition plan for high efficiency toilets and urinals (HET's and HEU's) in California.

This plan prescribes a specific timetable that will provide the industry with the necessary time to gradually convert existing 1.6 gallon per flush models to high efficiency models. The phase-in would commence in 2010, would require an increasing percentage of models to be high efficiency during a four-year period, and would require 100 percent of models to be high efficiency toilets and urinals by January, 2014.

The engineering and development work required to do this will require significant investment by every manufacturer. The structure and timing of the market transition plan contained in AB 715 acknowledges the technological challenges and capital costs required to develop designs and construct new tooling for all of the configurations of toilets and urinals, in order to transform entire product lines to successfully perform using at least 20% less water.

This plan is sound and enforceable, and will avoid a repeat of the performance problems experienced in the early days of 1.6 gallon per flush toilets when that standard was prematurely mandated.

PMI is pleased to have been able to work closely with Assembly Member Laird and his office to develop the market transition plan set forth in AB 715, and we are giving our assurance as manufacturers that we can transition the market successfully.



For these reasons, PMI urges you to sign AB 715 into law.

Thank you for this opportunity to discuss the position of PMI on this important measure. If you have any questions, please feel free to contact me at 847-481-5500, or our legislative advocate in Sacramento, Jerry Desmond, Jr., at 916-441-4166.

Sincerely,

A handwritten signature in dark ink that reads "Barbara C. Higgins". The signature is written in a cursive, flowing style.

Barbara C. Higgins
Executive Director

cc: The Honorable John Laird



September 30, 2009

The Honorable Arnold Schwarzenegger, Governor
State of California
State Capitol
Sacramento, CA 95814

RE: SB 407 [Padilla, high efficiency plumbing fixtures] – Request for Signature

Dear Governor Schwarzenegger:

The Plumbing Manufacturers Institute [PMI] urges you to sign into law SB 407 [Padilla], legislation being pursued by the Association of California Water Agencies, Metropolitan Water District of Southern California and the San Francisco Public Utilities Commission that would accomplish new and significant water efficiencies.

PMI is the trade association of plumbing products manufacturers. Its member companies produce most of the nation's plumbing products. The Institute functions as a sounding board for its members, a source for industry and market information, and as a coordinating and decision-making body for dealing with industry issues. It is active in many arenas as it helps develop and maintain standards and codes, and works closely with government agencies at all levels – federal, state and local.

Membership in PMI is open to manufacturers of plumbing industry products including potable water supply system components, fixture fittings, waste fixture fittings, fixtures, flushing devices, sanitary drainage system components, and plumbing appliances, which are marketed and sold within the territorial limits of the NAFTA countries.

SB 407 would require the replacement of non-water conserving plumbing fixtures in commercial and residential properties built prior to 1994 with water-conserving fixtures in single family residences by 2017 and in commercial and multi-family properties by 2019.

The provisions of SB 407 further the provisions of AB 715 [Laird], legislation you signed into law as Chapter 499, Statutes of 2007. AB 715 placed into statute the market transition plan requested by PMI so that one hundred percent of the models sold will be high efficiency toilets and urinals by January 1, 2014.

The provisions of SB 407 also advance the objectives of your February 27, 2009 proclamation of a statewide emergency due to drought and your request that Californians reduce their water use by 20 percent.

The replacement of older, high-water use plumbing fixtures with newer, more efficient models, together with regular checks for leaks, can reduce per capita water use by 35 percent (according to the American Water Works Association).

PMI looks forward to working with you, Senator Padilla and the sponsors of SB 407 as the provisions of SB 407 are implemented, to ensure that Californians will have effective and efficient products for use in their homes and businesses.

Sincerely,

A handwritten signature in black ink that reads "Barbara C. Higgins". The signature is written in a cursive style.

Barbara Higgins,
Executive Director

1921 Rohlwing Road Unit G • Rolling Meadows, Illinois 60008
Phone: 847-481-5500 • Fax: 847-481-5501 • www.pmihome.org

APPENDIX C

Input to the California HCD Focus Group on proposed 2013 CALGreen changes with respect to water conservation.

Plumbing Manufacturers International (PMI) appreciates the opportunity to provide feedback to the proposed changes to the CALGreen regulations. We understand the need to continuously improve all processes and would like to provide the following response to these proposed changes.

PMI is the voluntary, not-for-profit national trade association of manufacturers of plumbing products serving as the Voice of the Plumbing Industry. Member companies of PMI produce a substantial quantity of the nation's plumbing products. (See enclosed membership roster.) On the list you will note a number of California plumbing product manufacturers: Fisher Manufacturing, Fluidmaster, Inc., Haws and Pfister as well as several with a presence there: BrassCraft Manufacturing (A Masco Company), Elkay Manufacturing, Sloan Valve Company, and T & S Brass and Bronze Works, Inc. Directly or indirectly, all PMI members sell their products in California.

Our partnership with the US EPA on the voluntary WaterSense program to address water conservation concerns has contributed to the successful implementation across the United States. PMI recognizes the proposed CALGreen changes and supports the 2013 mandatory levels in Division 4.3 that mirror the goals set in the WaterSense program. These goals were developed with consumer research and data from plumbing product manufacturers.

PMI is concerned about the inclusion of seemingly arbitrary voluntary levels of water efficiency noted in section A4.302. Our concern is based on the absence of consumer usability data that would show the viability of these voluntary levels. We would ask that both the prescriptive and performance methods be deleted for several reasons.

The data presented in Table A4.303.1 is inaccurate and does not predict the actual baseline amount of water to be expected in real life. It presents a simplistic calculation based upon the assumption that flow rates always occur at the maximum rated flow for faucet and showerhead products. We know this not to be true, and present information below in support of real data. We also know that the durations and number of uses per day in this table are inaccurate. Based upon a number of studies conducted by Aquacraft Engineering on behalf of the US EPA (2005) and the American Water Works Association (1999), one might try to base the baseline calculation on a gallons per day basis. However, we also know that actual water use varies significantly based upon human behavior. For this reason, even if you use gallons per day as the baseline data to normalize for duration and frequency, a reliable prediction of real savings to compare to the baseline must reflect the fact that people do not open their faucet full most of the time. Trying to use a performance method to predict savings is just too complicated to be reliable.

Our Home Water Use data suggest from the frequency/flow rate histogram that the average flow rate over the conservation phase of the study, where lavatory faucets were restricted to 1.5 gpm, was actually 1.2 gpm. The number of uses/capita/day average was 18.4 at an average time of 0.21 minutes/use: $(1.2 \times 18.4 \times 0.21 = 4.6$ gallons/capita/day average. The formula in the CALGreen table would calculate $1.8 \times 4 \times 1 = 7.2$ gallons/capita/day average, which significantly overstates the baseline value.

For kitchen faucets, the number of uses/capita/day was 3.4, at 0.24 minutes per use. Based upon the 2.2 gpm units in the study, the average flow rate per use was 1.36 gpm: $1.36 \times 0.24 \times 3.4 = 1.1$ gallons/capita/day. The CALGreen table baseline is: $1.5 \times .25 \times 3 = 1.125$ gallons/capita/day, which is not a significant difference from our Home Water use data.

For Showers, the CALGreen table baseline is: $2.0 \times 8 \times 1 = 16$ gallons/capita/day. Our study indicates that for a 2.5 gpm showerhead limit, the average flow rate in use was about 2.3 gpm, or about 92% of full flow. For a 2.0 gpm showerhead, we could likewise assume a real flow rate of 1.84 gpm on average. Using the CALGreen table's assumptions of 1 shower/person/day and the 8 minute shower, the baseline should actually be: $1.84 \times 8 \times 1 = 14.72$ gallons/capita/day.

PMI is aware that a lower flow rate limit will result in water savings. A prescriptive approach is much simpler from both a design and inspection/enforcement standpoint, but is also likely to provide error in predicting real savings. PMI is very concerned with a prescriptive approach that leads to lower and lower flow rate restrictions without taking into account that one of the reasons people do not always open faucets full is because they do not need all that water to accomplish the task at hand. We have seen that when people use a 2.2 gpm lavatory faucet they were only using 1.6 gpm. We have also seen when people use a 1.5 gpm lavatory faucet, they tend to operate it in a fully open position. Continuing to ratchet flow rates down further is likely to result in consumer frustration and consumer replacement of aerators with higher flow rate units or worse yet, consumer removal of flow rate limiting parts. For this reason, in the future it would be very wise to conduct some consumer research, as the US EPA did with WaterSense flow rates on showerheads, to determine what their real requirements are for the tasks that they need to do.

Our third comment concerns voluntary measures in Appendix A4, specifically Division A4.3. Providing a voluntary flow rate schedule for adoption by various townships and municipalities throughout California creates a multitude of issues from an enforcement and manufacturers' standpoint:

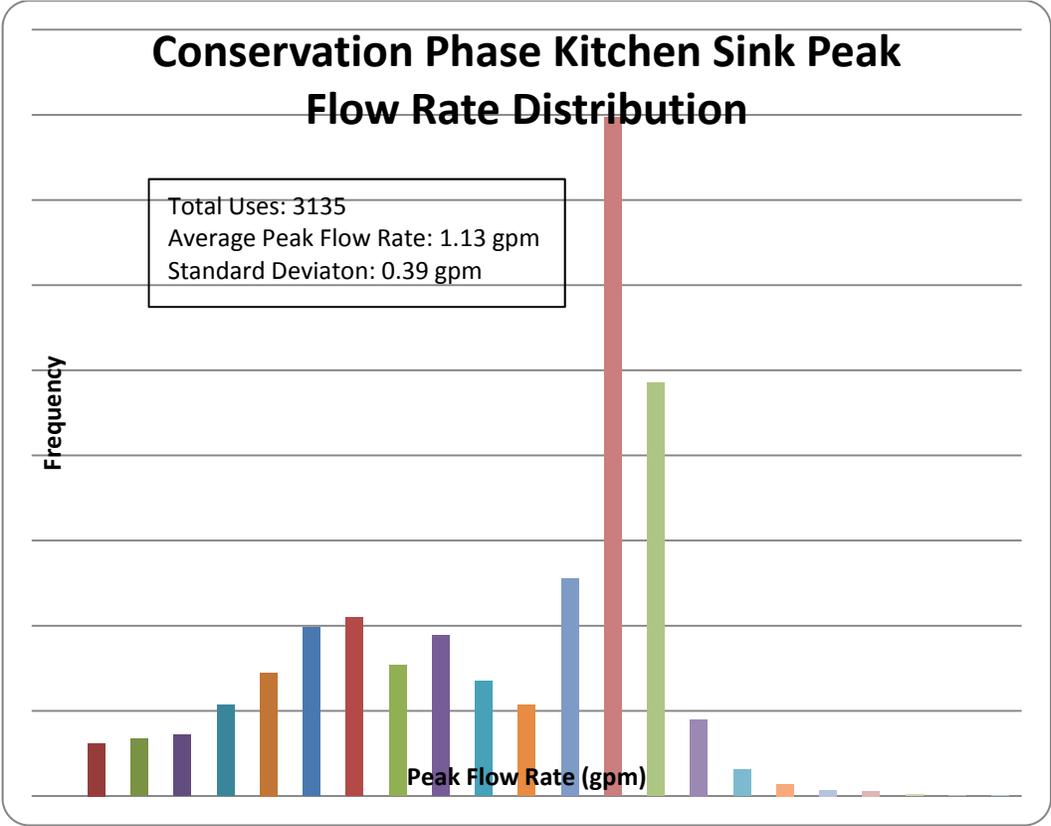
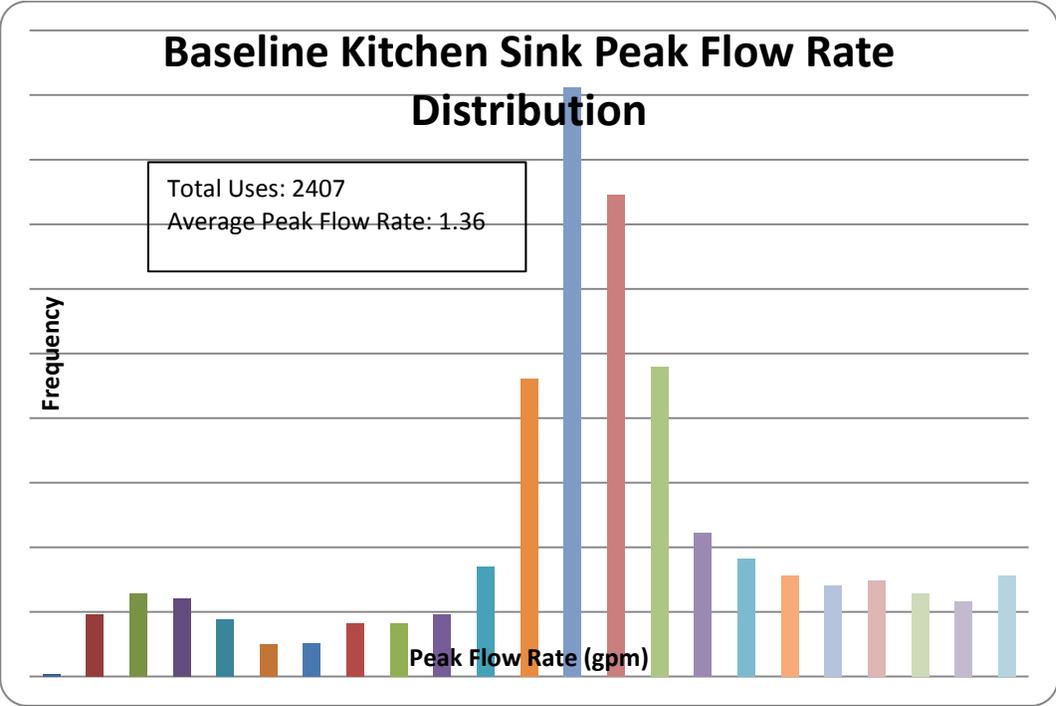
1 – It is nearly impossible to create products for an individual town that will only be sold in that town. Conversely, the same issue exists with products coming into individual towns from nearby sources.

2 – As lower flow rates continue to be regulated, secondary issues requiring pressure balance and thermostatic valves to prevent scalding and measures to address infrastructure waste pipe clogging need to be accounted for.

3 – The missing piece is this draft proposal is the need for consumer research. The attached charts are a snapshot of real world consumer usage and have been used in the development of voluntary standards such as WaterSense.

For the above reasons, we would ask that the appendix on voluntary flow rate standards be removed from the 2013 CalGreen draft regulations.

In closing, PMI would like to thank the California Housing and Community Development Focus Group for the opportunity to participate and comment on these proposals.



Source: IAPMO



October 15, 2012

Jim McGowan, Executive Director
California Building Standards Commission,
2525 Natomas Park Drive, Suite 130
Sacramento, California 95833

Subject: 2013 CALIFORNIA GREEN BUILDING STANDARDS CODE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11

E-mail Address: CBSC@dgs.ca.gov

Dear Mr. McGowan:

On behalf of Plumbing Manufacturers International (PMI), we are submitting the following comments in response to the 45-day public notice and comment period for the California Green Buildings Standards Code, California Code of Regulations Title 24, Part 11.

PMI is the leading national and technical trade association of plumbing products manufacturers in the United States. Our 32 manufacturers and allied members include many of the well-known companies selling plumbing products in the United States for decades. Our collective group of manufacturers is responsible for at least 90% of all the fixtures and fittings sold in the U.S. market.

PMI is a strong advocate for the efficient and safe use of water, a commitment that is evident in our longstanding partnerships with the US Environmental Protection Agency's (EPA) WaterSense Program and with organizations such as the Alliance for Water Efficiency. We also advocate for public health and safety and product performance, as well as the harmonization of the requirements of plumbing codes and standards.

Plumbing Manufacturers International (PMI) appreciates the opportunity to provide feedback to the proposed changes to the CALGreen regulations. We understand the need to continuously improve all processes and would like to provide the following response to these proposed changes.

PMI is the voluntary, not-for-profit national trade association of manufacturers of plumbing products serving as the Voice of the Plumbing Industry. Member companies of PMI produce a substantial quantity of the nation's plumbing products. (See footnoted membership roster.) On the list you will note a number of California plumbing product manufacturers: Fisher Manufacturing, Fluidmaster, Inc. and Pfister as well as several with a presence there: BrassCraft Manufacturing (A Masco Company), Elkay Manufacturing, Sloan Valve Company, TOTO USA and T & S Brass and Bronze Works, Inc. Directly or indirectly, all PMI members sell their products in California.

On behalf of our Members, PMI offers the following specific comments with regard to the proposed regulations:

1. Division 4.3. - 2013 Mandatory Levels

Our partnership with the US EPA on the voluntary WaterSense program to address water conservation concerns has contributed to the successful implementation across the United States. PMI recognizes the proposed CALGreen changes and supports the 2013 mandatory levels in Division 4.3 that mirror the goals set in the WaterSense program. These goals were developed with consumer research and data from plumbing product manufacturers.

2. Table A4.303.1. - Levels of Water Efficiency

PMI is concerned about the inclusion of seemingly arbitrary *voluntary* levels of water efficiency noted in section A4.303.1. Our concern is based on the absence of consumer usability data that would show the viability of these voluntary levels. In our discussions with the Housing and Community Development staff over the last year we understood that our inputs to the draft language of this revision of CALGreen would be seriously considered. In spite of our inputs, this draft continues to propose the arbitrary voluntary levels that will produce unintended consequences for those local jurisdictions relying on the noted voluntary recommendation in the CALGreen standard. We would ask that the voluntary levels be deleted for several reasons.

The data presented in Table A4.303.1 is inaccurate and does not predict the actual baseline amount of water to be expected in real life. It presents a simplistic calculation based upon the assumption that flow rates always occur at the maximum rated flow for faucet and showerhead products. We know this not to be true, and present information below in support of real data (see appendix). The Industry's information is that the durations and number of uses per day in this table are inaccurate. Based upon a number of studies conducted by Aquacraft Engineering on behalf of the US EPA (2005) and the American Water Works Association (1999), one might try to base the baseline calculation on a gallons per day basis. However, actual water use varies significantly based upon human behavior. For this reason, even if the regulation utilizes gallons per day as the baseline data to normalize for duration and frequency, a reliable prediction of real savings to compare to the baseline must reflect the fact that people do not open their faucets full most of the time. Trying to use a performance method to predict savings is just too complicated to be reliable.

a. Lavatory Faucets

Home Water Use data developed by PMI suggest from the frequency/flow rate histogram that the average flow rate over the conservation phase of the study, where lavatory faucets were restricted to 1.5 gpm, was actually 1.2 gpm. The number of uses/capita/day average was 18.4 at an average time of 0.21 minutes/use: $(1.2 \times 18.4 \times 0.21 = 4.6$ gallons/capita/day average. The formula in the CALGreen table would calculate $1.8 \times 4 \times 1 = 7.2$ gallons/capita/day average, which significantly overstates the baseline value.

b. Kitchen Faucets

For kitchen faucets, the number of uses/capita/day was 3.4, at 0.24 minutes per use. Based upon the 2.2 gpm units in the study, the average flow rate per use was 1.36 gpm: $1.36 \times 0.24 \times 3.4 = 1.1$ gallons/capita/day. The CALGreen table baseline is: $1.5 \times .25 \times 3 = 1.125$ gallons/capita/day, which is

not a significant difference from the PMI Home Water use data.

c. Showers

For showers, the CALGreen table baseline is: $2.0 \times 8 \times 1 = 16$ gallons/capita/day. The PMI Home Water use data indicates that for a 2.5 gpm showerhead limit, the average flow rate in use was about 2.3 gpm, or about 92% of full flow. For a 2.0 gpm showerhead, we could likewise assume a real flow rate of 1.84 gpm on average. Using the CALGreen table's assumptions of 1 shower/person/day and the 8 minute shower, the baseline should actually be: $1.84 \times 8 \times 1 = 14.72$ gallons/capita/day.

d. Consumer Research to Determine Real Requirements

PMI is aware that a lower flow rate limit will result in water savings. A prescriptive approach is much simpler from both a design and inspection/enforcement standpoint, but is also likely to provide error in predicting real savings. PMI is very concerned with a prescriptive approach that leads to lower and lower flow rate restrictions without taking into account that one of the reasons people do not always open faucets full is because they do not need all that water to accomplish the task at hand. We have seen that when people use a 2.2 gpm lavatory faucet they were only using 1.6 gpm. We have also seen when people use a 1.5 gpm lavatory faucet, they tend to operate it in a fully open position. Continuing to ratchet flow rates down further is likely to result in consumer frustration and consumer replacement of aerators with higher flow rate units or worse yet, consumer removal of flow rate limiting parts. For this reason, in the future it would be very wise to conduct some consumer research, as the US EPA did with WaterSense flow rates on showerheads, to determine what their real requirements are for the tasks that they need to do.

3. Appendix A4, specifically Table A4.303.2. – Voluntary Measures

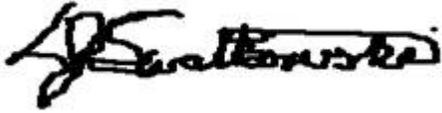
PMI's third comment concerns voluntary measures in Appendix A4, specifically Table A4.303.2. Providing a voluntary flow rate schedule for adoption by various townships and municipalities throughout California creates a multitude of issues from an enforcement and manufacturers' standpoint, most significantly:

- 1 – It is nearly impossible to create products for an individual town that will only be sold in that town. Conversely, the same issue exists with products coming into individual towns from nearby sources.
- 2 – As lower flow rates continue to be regulated, secondary issues requiring pressure balance and thermostatic valves to prevent scalding and measures to address infrastructure waste pipe clogging need to be accounted for.
- 3 – The missing piece in this draft proposal is the need for consumer research. The attached charts are a snapshot of real world consumer usage and have been used in the development of voluntary standards such as WaterSense.

In conclusion, PMI believes it is important that the appendix on voluntary flow rate standards be removed from the 2013 CalGreen draft regulations.

PMI would like to thank the California Housing and Community Development Focus Group for the opportunity to participate and comment on these proposals.

Sincerely,



Len Swatkowski

Technical Director

Plumbing Manufacturers International

1921-G Rohlwing Road

Rolling Meadows, IL 60008

p: 847.481.5500 x 105

f: 847.481.5501

c: 614.406.2352

cc: Barbara C Higgins, Executive Director, PMI

Jerry Desmond Jr., Desmond & Desmond

American Standard Brands, Inc. * Amerikam, Inc. * Bradley Corporation * BrassCraft Mfg. Co. * Chase Brass & Copper Company * CSA International * Delta Faucet Company * Dornbracht Americas * Duravit USA * Elkay Manufacturing Company * Fisher Manufacturing Company * Fluidmaster, Inc. * Gerber/Danze Plumbing Fixtures LLC * Hansgrohe, Inc. * IAPMO * InSinkErator * Kohler Company * KWC America, Inc. * Lavelle Industries * LSP Products * Moen Incorporated * Mueller Brass Company * NEOPERL, Inc. * Pfister * Sloan Valve Company * Speakman Company * Symmons Industries Inc. * T & S Brass and Bronze Works, Inc. * TOTO USA * Vitra USA * Water Pik * WCM Industries, Inc.