This presentation premiered at WaterSmart Innovations.

watersmartinnovations.com
Water Efficiency and Sanitation Standard for Use In and Around Buildings

Pete DeMarco
Executive Vice President of Advocacy and Research
International Association of Plumbing and Mechanical Officials (IAPMO)
Agenda

• Brief Introduction to the IAPMO Group
  – Our Work In Context

• WE💧Stand
  – Why is it needed?
  – What’s in it?
  – Who did it?
  – Where and How does it happen?
  – When does it happen?
  – What’s next?

• Q&A
The IAPMO Group – Our Work in Context

Complete International Service Organization

- Code Development
- Standards Development
- Training and Education
  - From market access to capacity building
- Accredited Industry Leading Compliance Programs
- Test Labs, 3rd Party Certification Program, Continuous Compliance Inspection Program
- We Focus On Where Water Meets People
International Reach

- USA
  - UPC, UMC, USPC, USEC (American National Standards)
- India
- Philippines
- Vietnam
- Kuwait
- Jordan
- Indonesia
IAPMO Baseline Codes

- Installation code of practices
- References hundreds of product standards
- ANSI accredited consensus process – fair, balanced, transparent, all stakeholders have a vote throughout the entire development process
- Addresses both energy and water efficiency
- 2012 UPC – 1st model code in the USA with provisions for rainwater catchment, gray water and reclaimed water in the body of the code
An American National Standard

Water Efficiency and Sanitation Standard for Use In and Around Buildings
All Codes & Standards Are NOT Created Equal

• IAPMO Codes are published as American National Standards (ANSI standards)
• Requires a strict set of development procedures and a balanced development committee - no interest group can dominate the development process
• Public review requirements insure all submitted comments are properly addressed and considered
• Vigorous appeals process, including ultimate direct appeal to ANSI
• Standards not designated as ANSI standards do not need to comply with such strict requirements
• It’s left to the SDO to determine the procedures and actual level of consensus
Why is WE Stand Needed?
Why is WEstand Needed?
How We Use Water Is Changing

Impact of Conservation on Historical Water Demand
Components of Conservation Savings Since 1990

- Actual Demand
- 1990 Forecast with No Conservation
- Residual - Unattributed Savings
- Estimated - Transitory Savings
- Estimated - Conservation Programs
- Estimated - Plumbing Code
- Modeled - Rate Impacts
- Actual - System Operation Improvements

Example from Seattle Public Utilities
Why is WEStand Needed

Need, Purpose and Scope Statement

With increasing demand, constrained infrastructure and supplies, and pervasive droughts globally, there is a critical need to reduce water consumption attributed to the built environment through conservation and reuse. With this comes increased risks to public health, safety, and building systems performance. This ANS would provide minimum requirements that optimize built environment water use practices and corresponding provisions that maintain protection to public health, safety, and welfare.

The purpose of this standard is to provide progressive codified requirements to optimize water use practices attributed to the built environment while maintaining protection of the public health, safety and welfare.

WEStand applies to both residential and commercial construction.
Why is WEStand Needed

• Fills a need for an American National Standard that focuses solely on Water Efficiency

• Publication as a standard allows for multiple means of adoption by States and municipalities

• Allows for bringing together the best minds in the water efficiency industries to develop a robust and comprehensive standard
WE Stand Will Replace the IAPMO GPMCS

2015 GREEN PLUMBING & MECHANICAL CODE SUPPLEMENT
FOR USE WITH ALL CODES

IAPMO GREEN

WE Stand
Water Efficiency Standard for Built Environment

IAPMO
Who Did It?
Organization of WE Stand

- Executive Committee
  IAPMO CEO, IAPMO COO, and Senior VP of Advocacy and Research who govern the Technical Committee

- Secretariat (IAPMO)
  Maintains records and roster, publishes reports, oversees compliance with Regulations

- Technical Committee
  Responsible for developing the WE Stand. Need to be balanced by interest categories

- Task Groups
  Created by the TC to address specific topics or problems.

- Technical Correlating Committee
  Responsible to resolve conflicts, correcting errors and omissions
Who Did It?
The WEStand Technical Committee Affiliations

- Alliance for Water Efficiency
- L.A. Department of Water and Power
- National and Illinois PHCC
- Kohler Company
- American Society of Plumbing Engineers
- Irrigation Association
- The Association of Pool and Spa Professionals
- California Pipe Trades Council
- The Water Institute of UNC
- Water Quality Association

- Southern Nevada Water Authority
- CA Department of Housing and Community Development
- United Association
- Greywater Action
- Plumbing Manufacturers International
- Koeller and Company
- City of Santa Monica
- Haines, Jones, and Cadbury
- California Energy Commission
What’s In It?

WE Stand Contents

- Administration
- Definitions
- General Regulations
- Water Efficiency and Conservation
- Alternate Water Sources for NonPotable Applications
- Nonpotable Rainwater Catchment Systems
- Water Heating Design, Equipment and Installation
- Installer Qualifications
- Referenced Standards
- Appendices
  - Potable Rainwater Catchment Systems
  - Vacuum Drainage Systems
What’s In It?

Indoor & Outdoor Water Efficiency

• Fixtures, Fittings & Appliances – Thoughtful provisions for safe and efficient consumption and flow rate requirements

• Composting – Contains the first set of comprehensive codified requirements for composting and urine diversion toilets – for commercial and residential applications.

• Leak detection – Important new safety provisions for leak detection systems

• Landscape Irrigation – Important new provisions for system inspection and performance.

• New pool pumps requirements for energy efficiency
What’s In It?
Alternate Water Sources

- Progressive provisions for uses of gray water generated from clothes washers in landscape irrigation.
- New requirements that reduce the cost of retrofitting gray water systems in single family homes.
- Allows for the installation of rainwater catchment systems up to 5000 gallons for non-potable uses without requiring inspections under certain conditions, reducing costs to owners.
What’s In It?
Hot Water Efficiency and Pipe Sizing


• Big News!! New water supply pipe sizing method and demand calculator
  – The first comprehensive pipe sizing method advancement since Hunter’s Curve
  – Works with all pipe materials and residential systems of all sizes, even multifamily.
  – Easy to use Demand Calculator determines pipe size based on today’s plumbing fixtures and appliances and usage patterns.
  – Results in: improved scouring action in water pipes – inhibits biofilm growth; shorter water dwell times in premise plumbing systems – improves water quality; faster hot water delivery times throughout the plumbing system – saves energy, water and $; Reduced construction costs
The Future of Residential Water Distribution and Sizing

Water Demand Calculator

Applying a new statistical-based method to safely reduce pipe diameters in homes reduces cost, improves both water and energy efficiency and helps to mitigate biofilm development in water pipes, improving water quality and the potential for opportunistic pathogens to grow.

<table>
<thead>
<tr>
<th>Fixture Description</th>
<th>Enter Number of Fixtures</th>
<th>Probability of Use (%)</th>
<th>Enter Fixture Flow Rate (GPM)</th>
<th>Maximum Recommended Fixture Flow Rate (GPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar Sink</td>
<td>0</td>
<td>2.0</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Bathtub</td>
<td>0</td>
<td>1.0</td>
<td>5.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Bidet</td>
<td>0</td>
<td>1.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Clothes Washer</td>
<td>1</td>
<td>5.5</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Combination Bath/Shower</td>
<td>1</td>
<td>5.5</td>
<td>5.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>1</td>
<td>0.5</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Kitchen Faucet</td>
<td>1</td>
<td>2.0</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Laundry Faucet</td>
<td>0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Lavatory Faucet</td>
<td>1</td>
<td>2.0</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Shower, per head</td>
<td>0</td>
<td>4.5</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Water Closet, 1.28 GPF Gravity Tank</td>
<td>1</td>
<td>1.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Other Fixture 1</td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other Fixture 2</td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other Fixture 3</td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Total Number of Fixtures = 6

99th Percentile Demand Flow = 8.5 GPM

RUN WATER DEMAND CALCULATOR

RESET
Where and How Does It Happen?

**WE Stand Development Process**

*All WE Stand meetings are convened in Ontario, CA*

**Two Stages of Development**

1. **Proposal Stage**
   a) Call for submission and publication of proposals
   b) Open meeting for TC actions on the proposals
   c) Letter Ballot affirmation on TC actions
   d) Publication of the Report on Proposals

2. **Comment Stage**
   a) Call for public comments on TC actions in the ROP
   b) Open meeting for TC actions on the public comments
   c) Letter ballot affirmation on TC actions
   d) Publication of the Report on Comments
When Does It Happen?

2020 WE∗Stand Code Cycle (3 Year Development Cycle)

October 16, 2017  Call for TC Applications (45 days)
January 5, 2018   Call for Task Group Members (45 days)
March 5, 2018 – December 14, 2018  Task Group Activity
June 5, 2018      WEStand Development Process via WebEx Teleconference
October 1, 2018   Call for Proposals
January 29, 2019  Deadline for Submission of Proposals
March 1, 2019     Distribution of Proposals to Committee (Proposal Monograph)
April 9-10, 2019  Technical Committee Meetings
April 25, 2019    Initial Ballot to Technical Committee
May 9, 2019       Receipt of Initial Ballots and Circulation of Comments
May 23, 2019      Final Closing Date for Ballots and Includes Receipt of Vote Changes Based on Re-Circulated Comments
What’s Next?
Here’s what the TC has teed up for the 2020 WE Stand Code Cycle

• Alternate Water Sources
  • New requirements for stormwater treatment and uses
  • New requirements for black water treatment and uses
  • The safe reuse of commercial kitchen effluent

• Net Zero Water and Waste
  • Considerations for safely attaining net-zero water and waste performance in buildings

Commercial Food Service
• Consideration of new water efficiency provisions for convenience stores (i.e. Slurpee Machines)
• Food waste management – new biological and composting technologies
• RO efficiency markers for reject water
What’s Next?
Here’s what the TC has teed up for the 2020 WEStand Code Cycle

• Composting
  • Informative Appendix on the proper installation and maintenance of composting toilets
• Installer Qualifications
  • New certification recommendations – helps ensure proper installation of water efficient technologies
• Premise Water Supply Systems
  • Efficient Arrangement of plumbing fixtures – Compact Distribution Strategies – improves water and energy efficiency and water quality
  • Investigation into minimum and maximum water flow velocities in premise plumbing
  • Appropriate uses and maximum length requirement for 3/8” diameter tubing
• Sustainable Drinking Water Treatment
  • New references of industry standards addressing water treatment technologies
WEStand Web Page – Visit and Get Involved!

For more information visit http://www.iapmo.org/WEStand/Pages/default.aspx

Click on “Technical Committee” to download application
WE Thank you!!

WE Stand

An American National Standard

Water Efficiency and Sanitation for the Built Environment