This presentation premiered at WaterSmart Innovations

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Balancing Sustainability and Safety

Speaker

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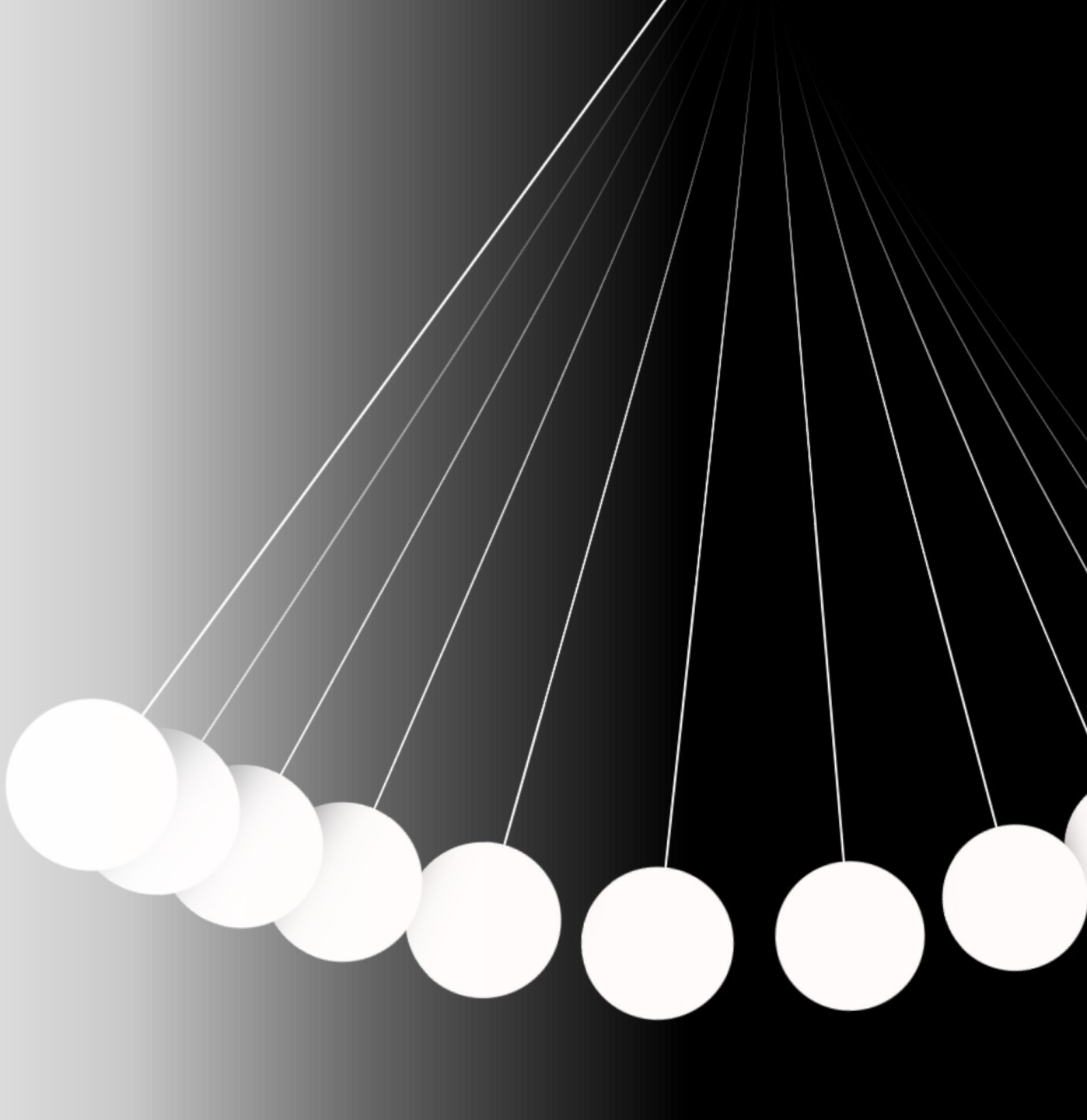
Concentrated Leadership. Respected Energy.

Christoph Lohr has over a decade of experience in designing plumbing systems for healthcare, laboratory, hospitality, sports, and university projects. He has a reputation as a results-oriented expert. Christoph's current responsibilities as Vice President of Strategic Initiatives for IAPMO is to identify long term, high impact projects, developing a business case for them, bring resources to bear, and executing them for maximum results. He has a concentrated focus in honing his personal and organization's strategy on possible breakthrough points which has led to improved effectiveness and growth.

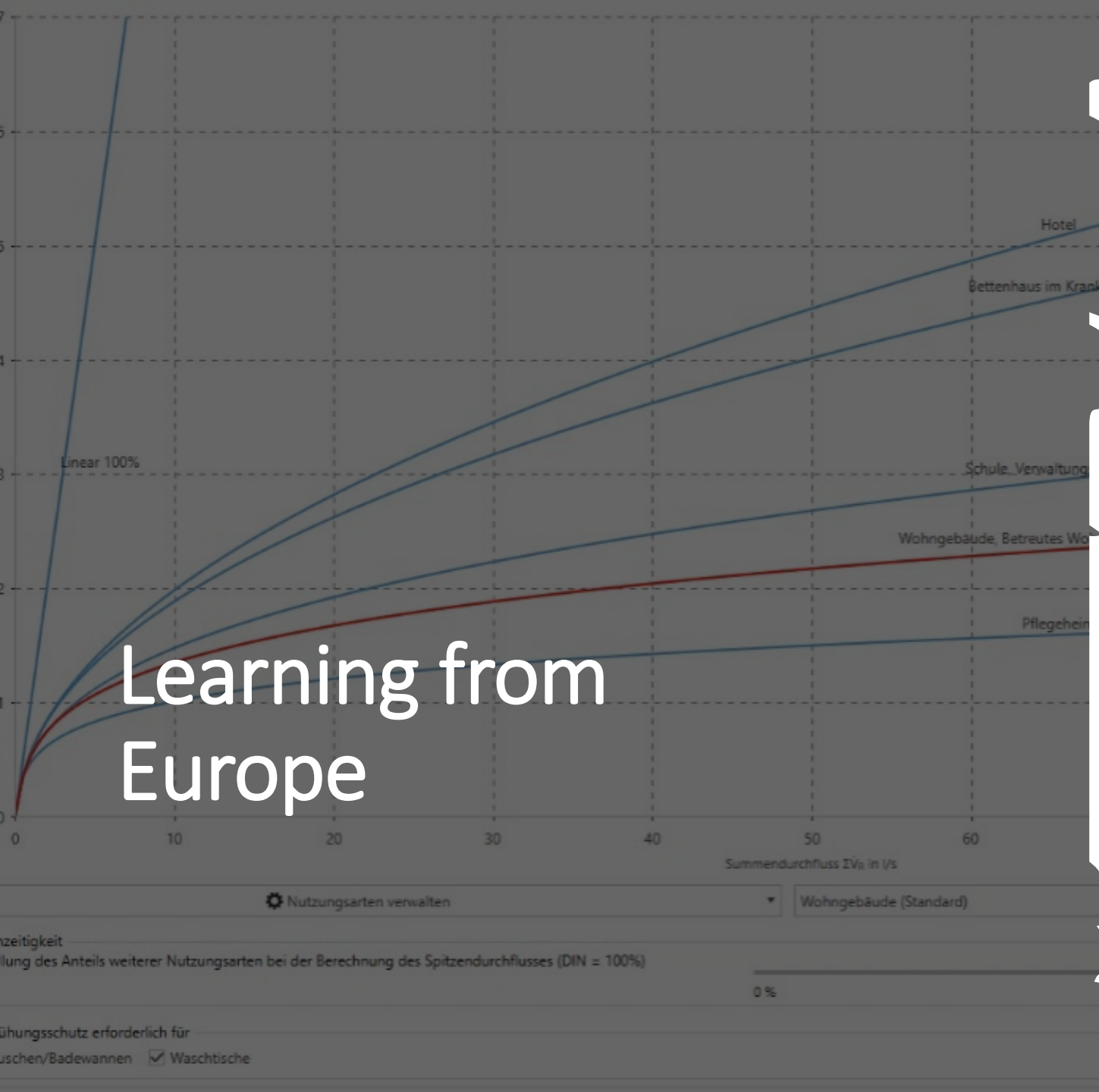
Christoph's professional activities in the industry extend into multiple volunteer associations, of which he has also assumed leadership roles setting strategy and direction for teams including ASPE Phoenix Chapter, ASPE Society, ASPE Legionella Working Group, ASHRAE Committees, PIPE Trust of Arizona, IAPMO's Safe Building Reopening Best Practices among others. Additionally, he has been involved in numerous strategic planning initiatives to help organizations he has belonged to in improving their overall effectiveness. It is with this mindset that Christoph consistently looks to find long-term, holistic solutions that positively impact public health and safety, particularly in the world of water and plumbing.

Plumbing Resiliency.
Drought Prevention & Minimizing the Impact of Seismic Events

Plumbing Resiliency.
Balancing Sustainability & Public Health/Safety



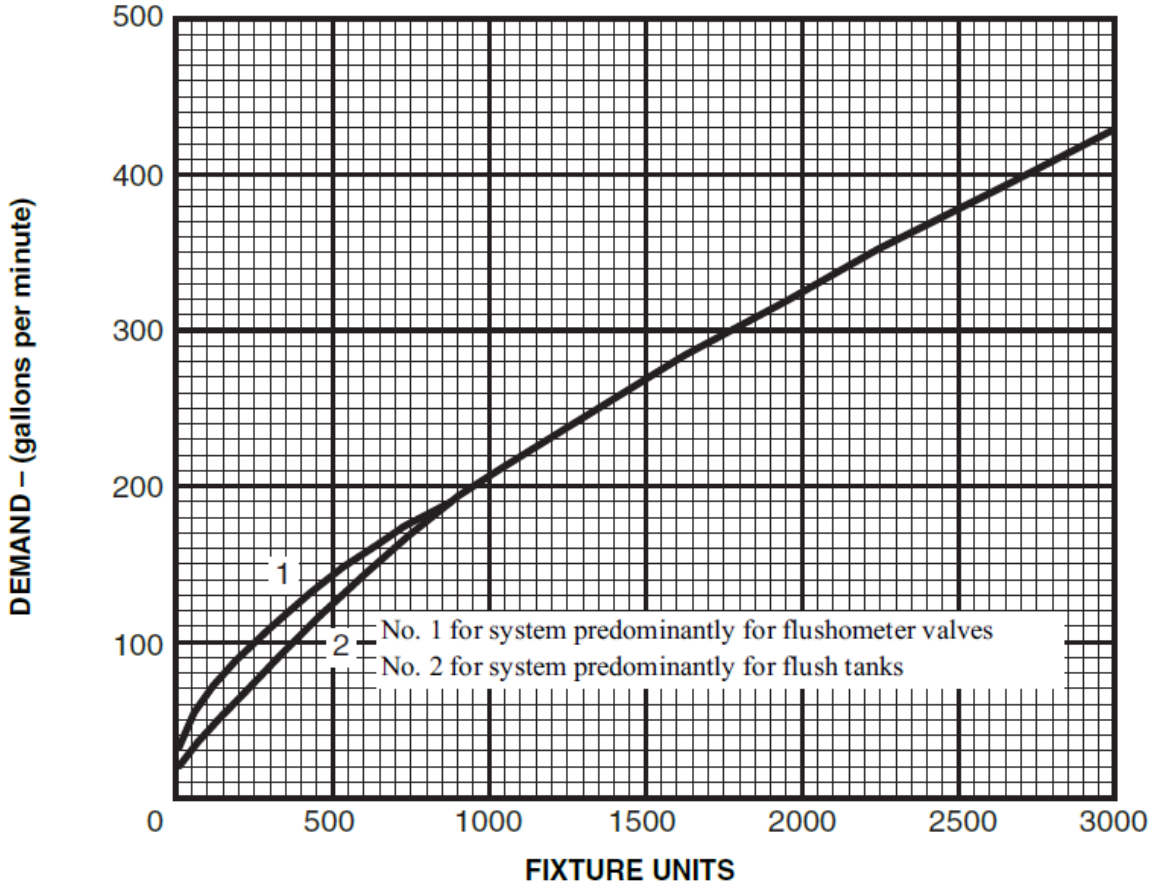
Learning from Europe



Source: Modified from Figure 6-8, M20 *Water Chlorination and Chloramination Practices and Principles*, 2nd Edition (AWWA, 2006)

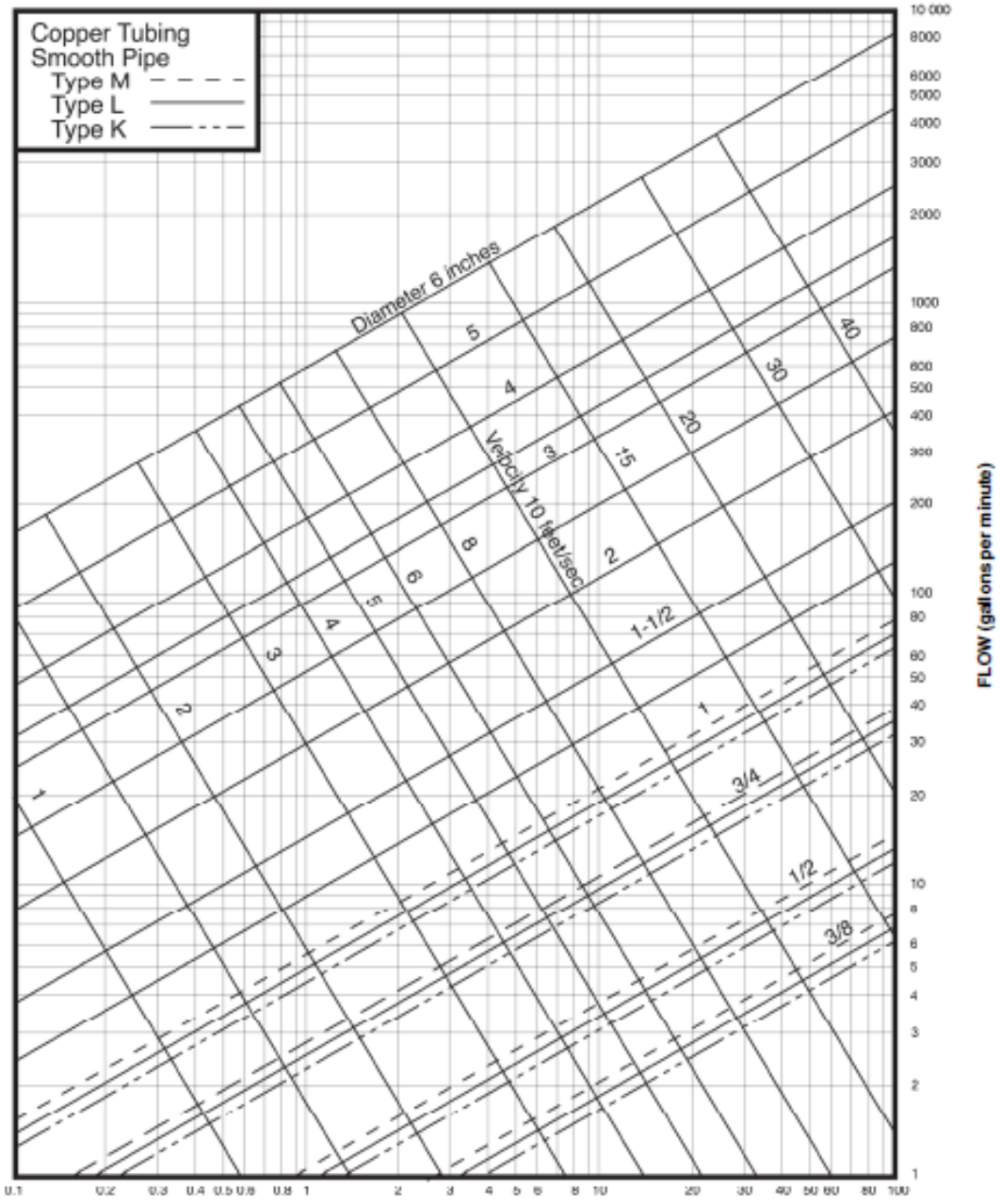
How do we Design?

CHART A 103.1(1)
ESTIMATE CURVES FOR DEMAND LOAD



For SI units: 1 gallon per minute = 0.06 L/s

CHART A 105.1(1)



For SI units: 1 inch = 25 mm, 1 gallon per minute = 0.06 L/s, 1 pound-force per square inch = 6.8947 kPa, 1 foot = 304.8 mm, 1 foot per second = 0.3048 m/s

The Water Demand Calculator

Fixtures	4	Faucet, Lavatory	0	2.00	1.5	1.5
	5	Shower, per head (no Bathtub)	0	4.50	2.0	2.0
	6	Water Closet, 1.28 GPF Gravity Tank	0	1.00	3.0	3.0
Kitchen Fixtures	7	Dishwasher	0	0.50	1.3	1.3
	8	Faucet, Kitchen Sink	0	2.00	2.2	2.2
Laundry Room Fixtures	9	Clothes Washer	0	5.50	3.5	3.5
	10	Faucet, Laundry	0	2.00	2.0	2.0
Bar/Prep Fixtures	11	Faucet, Bar Sink	0	2.00	1.5	1.5
Other Fixtures	12	Fixture 1	0	0.00	0.0	6.0
	13	Fixture 2	0	0.00	0.0	6.0
	14	Fixture 3	0	0.00	0.0	6.0

99th Percentile Demand Flow

Hunter Number

Stagnation Proba

DOWNLOAD

RESET

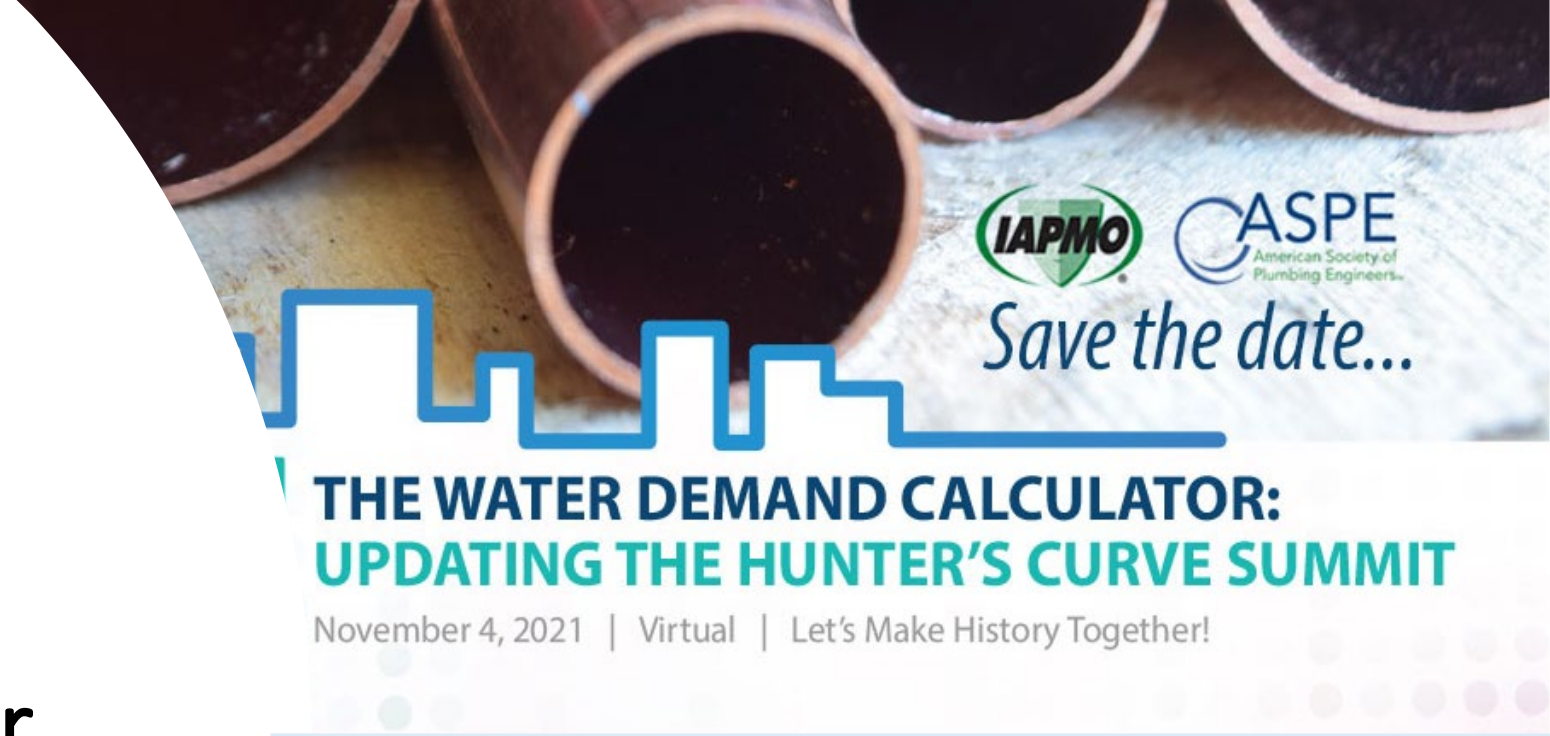
↓ Select Units for Water Demand ↓

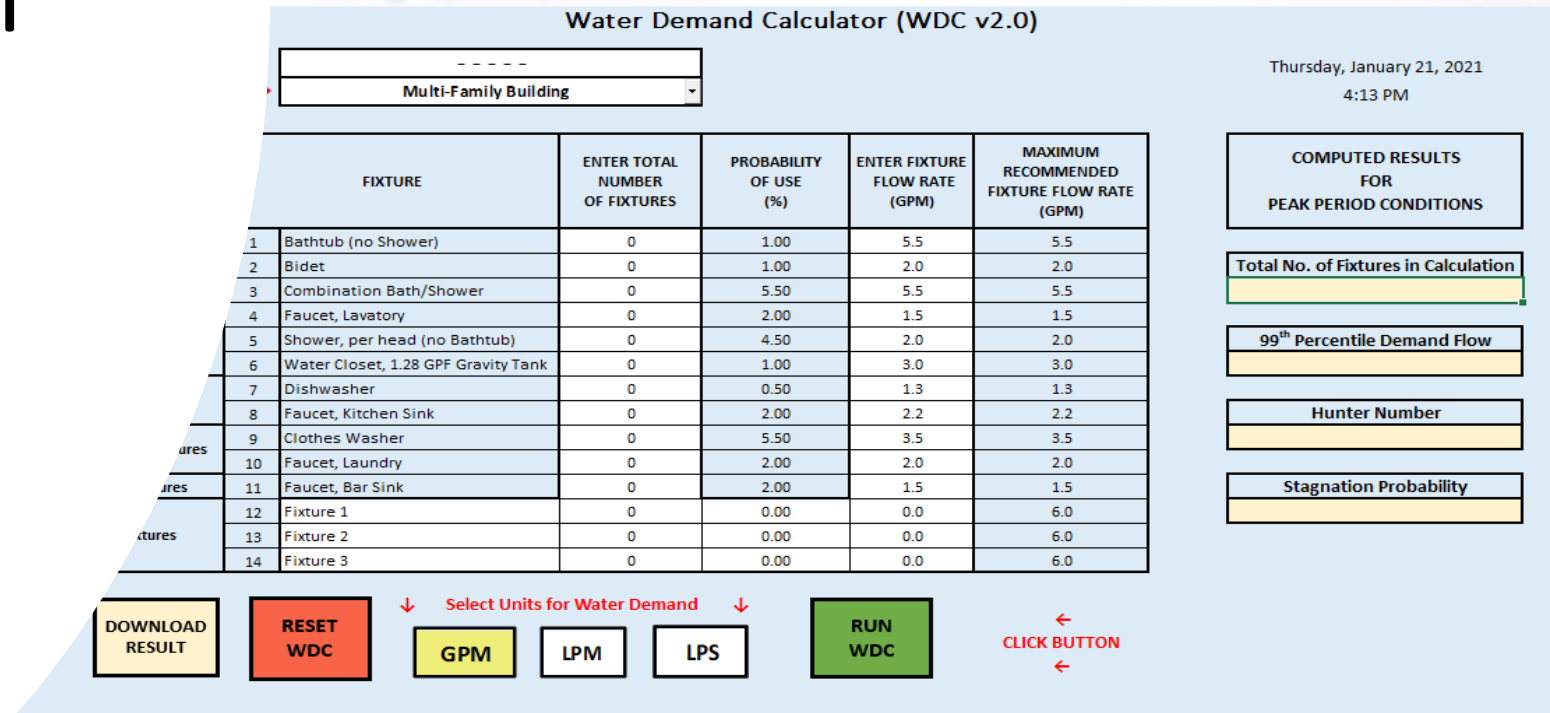
RUN

←

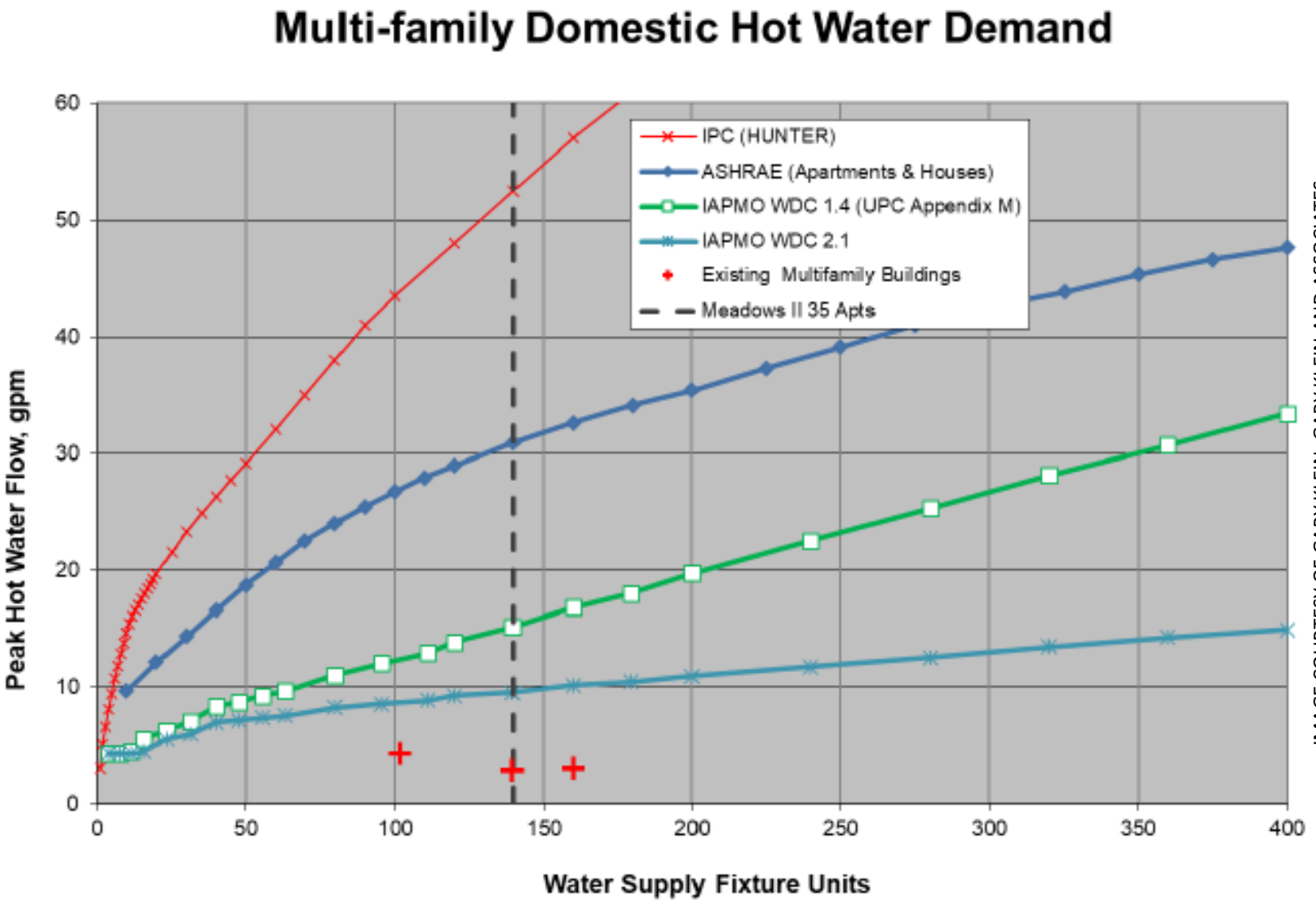
Pipe Sizing's Methodology on Water Quality

[Can drinking water be delivered without disinfectants like chlorine and still be safe? (theconversation.com)]
(Article by Vanessa Speight)

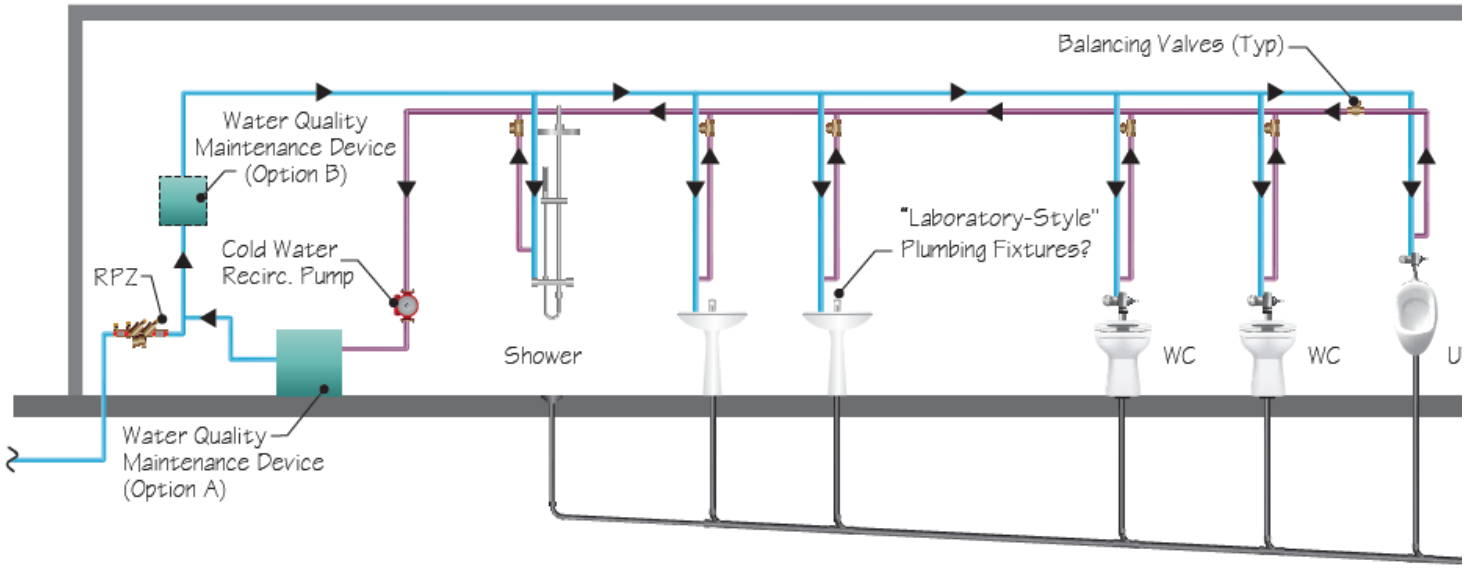




Water Demand Calculator - Savings

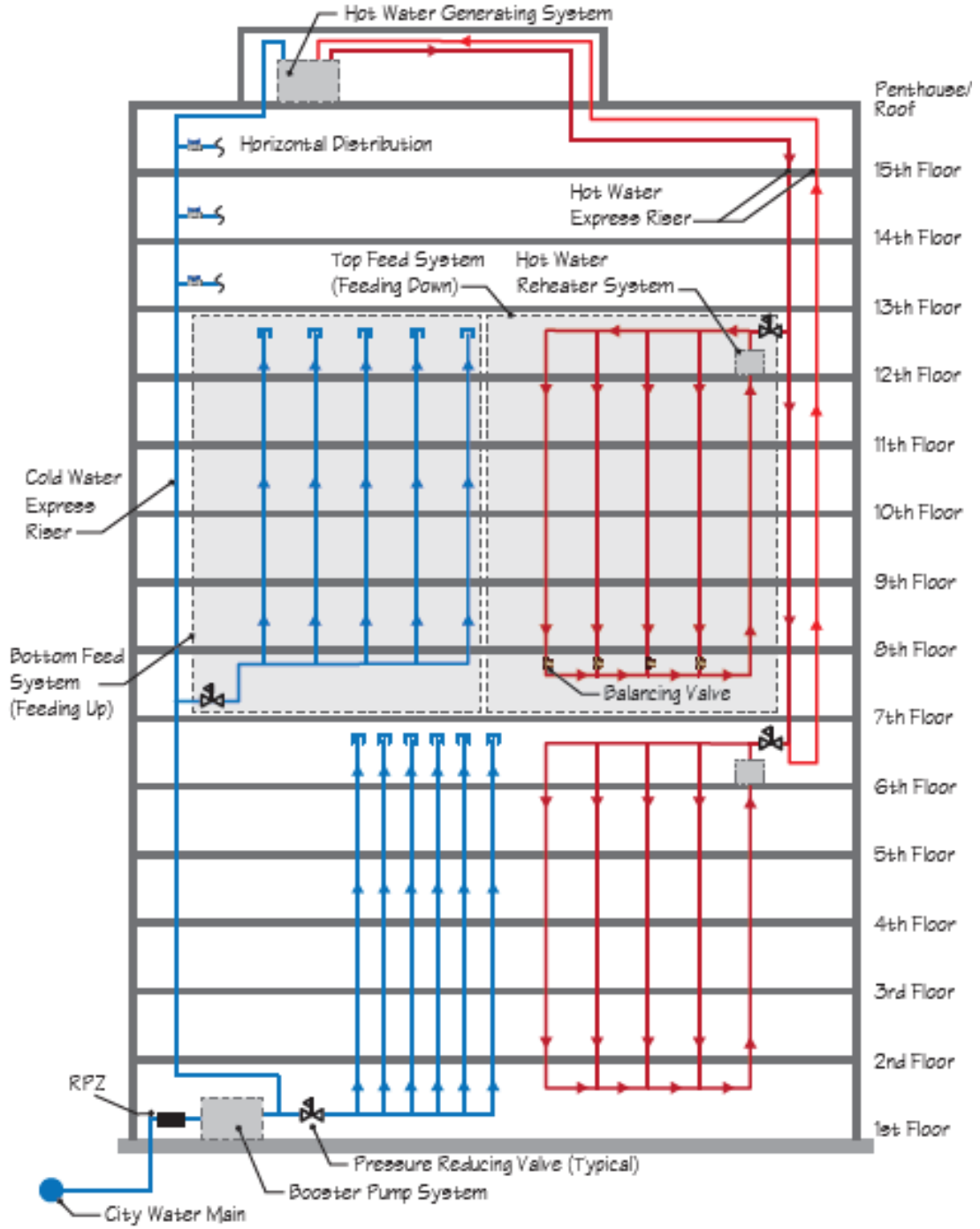


The red crosses represent individual days from three apartment buildings with different fixture counts. This shows that actual hot water use is 2-3 times less than predicted by even the IAPMO WDC v2, providing a good margin of safety for extremely high events.



Vacant Buildings

“Rethink”: Construction



“People think that plumbing is simple, but it is highly complicated.”

-David LaFrance, CEO, International Association of Plumbing and Mechanical Officials

-David LaFrance, VP of Strategic Initiatives American Water Works Association

Summary and Questions?

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1. We need to apply **systems thinking** (i.e. strategy) to water.
2. Rethinking the importance of **pipe sizing methodologies**.
3. Incorporate "**Plumbing Resiliency**"-concepts into proposed solutions, always looking to balance (sometimes competing) variables of sustainability, public health/safety, disaster mitigation, and affordability/equity. This means elevating plumbing in our words and actions.