



AGENDA REPORT



TO: Honorable Mayor & City Council

FROM: Councilmember Kaplan,
At-Large

SUBJECT: 2019 Plumbing Code, Appendix M

DATE: 2/2/23

RECOMMENDATION

Councilmember Kaplan Recommends That The City Council Adopt an Ordinance:

Amending The Oakland Municipal Code To Add Section 15.04.3.5065 To Adopt Appendix M Of The 2022 California Plumbing Code, California Code Of Regulations, Title 24, Part 5, Peak Water Demand Calculator; And Adopting Appropriate California Environmental Quality Act Findings

EXECUTIVE SUMMARY

This Ordinance would voluntarily adopt Appendix M of the 2022 California Plumbing Code, the Water Demand Calculator (WDC), a tool for calculating peak water demand for new residential developments. The method for estimating the demand load in Appendix M is the first significant update of water pipe sizing in buildings in over 80 years. With the adoption of Appendix M, the City of Oakland would further improve pipe sizing and reduce existing inefficiencies in the interests of affordable development and public welfare.

BACKGROUND / LEGISLATIVE HISTORY

Title 24, the California Building Standards Code, of the California Code of Regulations is a broad set of requirements for construction regarding plumbing, fire and panic safety, and sustainability. These codes are updated every three years and, depending on the section of the code, are based on national and international standards. The 2022 California Building Standards Code was recently adopted and is effective as of January 1, 2023.

State law allows local governments to adopt amendments to the California Building Standards Code, including the optional appendices of the Code. Appendix M of the California Plumbing Code authorizes the use of the Water Demand Calculator, developed by the International Association of Plumbing & Mechanical Officials (IAPMO) as a tool for calculating peak water demand of new residential developments if authorized by local ordinance.

The method for estimating the demand load in Appendix M is the first significant update of water pipe sizing in buildings in over 80 years. With the adoption of Appendix M, the City of Oakland would further improve pipe sizing and reduce existing inefficiencies in the interests of affordable development and public welfare.

ANALYSIS AND POLICY ALTERNATIVES

Appendix M of the California Plumbing Code (CPC) provides a method for estimating the demand load for the building water supply and principal branches for single- and multi-family dwellings with

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water-conserving plumbing fixtures, fixture fittings, and appliances. The International Association of Plumbing & Mechanical Officials (IAPMO) developed the Peak Water Demand Calculator (WDC) to respond to the increased use of water-conserving plumbing fixtures and the subsequent decreased demand for water in residences.¹

The WDC is the first significant codified modification to estimating peak indoor water demand since the development of Hunter's curve 80 years ago. Flow rates currently are based on data and plumbing fixtures from the 1930s. As a result, the plumbing systems in single- and multi-family dwellings are oversized, which results in:

- Increased water aging and declining water quality
- Wasted energy and water
- Longer hot water delivery times; and
- Unnecessary material and labor costs during construction

The WDC was developed specifically to address the water quality and water and energy efficiency problems associated with oversized building water pipes. However, the use of the WDC also provides significant cost-saving efficiencies. Smaller pipes are more compatible with modern fixtures, which can help save water for utilities and their customers. For every decrease in pipe size, less energy is required for water circulation pumps and water heaters to transfer and heat water throughout a building, leading to energy savings for both utilities and consumers. By shrinking pipe size requirements, the manufacturers can reduce their carbon footprint. In addition, smaller pipes mean fewer resources and energy are needed per pipe, lowering the carbon footprint of each new pipe produced.

Appendix M of the CPC The City of Oakland finds that the adoption of Appendix M as an amendment to the Oakland Municipal Code section 15.04.3.5065 is necessary to address local climatic conditions and to provide for the construction and retention of buildings and facilities in Oakland.

PUBLIC OUTREACH / INTEREST

Planning and Building staff shared that prior to implementation, informing customers and providing proper forms and check boxes for the permit application will play an essential role in ensuring the use of Appendix M. In addition, providing staff training at permit, plan, review, and inspections will be necessary for enforcement.

COORDINATION

Staff have reached out to East Bay Municipal Utility District to keep coordinating stakeholders abreast of this potential change.

SUSTAINABLE OPPORTUNITIES

Economic: The use of the WDC will provide significant cost-saving efficiencies. Smaller pipes are more compatible with modern fixtures, which can help save water for utilities and their customers. For every decrease in pipe size, less energy is required for water circulation pumps and water heaters to transfer and heat water throughout a building, leading to energy savings for both utilities and consumers.

¹ Muchberger, Steven, et al. "[Peak Water Demand Study: Probability Estimates for Efficient Fixtures in Single and Multi-Family Residential Buildings](#)." Jan. 2017.

Environmental: The adoption of Appendix M will allow for the implementation of a more accurate pipe sizing methodology for new residential development, which will, in turn, improve water-use efficiency through the subsequent implementation of smaller piping, helping to address drought-related water supply impacts.

The City's adoption of Appendix M would further strengthen the City's alignment with existing water efficiency legislation such as AB 1668 (2018) and SB 606 (2018), which task the State Water Resources Control board to establish long-term urban water use efficiency standards. The enacted legislation sets a target of 55 gallons per capita per day for indoor water use, and given that the target will become further restrictive come January 2030, the adoption of Appendix M will provide the City with the necessary tools to meet the future target for per capita water use.

By shrinking pipe size requirements, manufacturers can reduce their carbon footprint. In addition, smaller pipes mean fewer resources and energy are needed per pipe, lowering the carbon footprint of each new pipe produced.

Race & Equity: No direct Race & Equity opportunities have been identified related to this ordinance.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

This ordinance is exempt from CEQA pursuant to CEQA Guidelines §15061(b)(3) as a project that has no potential for causing a significant effect on the environment given it simply adopts an existing Plumbing Code standard. This ordinance is also exempt from CEQA because its adoption is a measure for the protection of the environment pursuant to CEQA Guidelines section 15308

ACTION REQUESTED OF THE CITY COUNCIL

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For questions regarding this report, please contact Christine Miyashiro, Policy Director for Councilmember Kaplan, at Cmiyashiro@oaklandca.gov.

Respectfully submitted,



Councilmember Kaplan
At-Large

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Attachments (1): Appendix M of the 2022 California Plumbing Code