CITY OF TUCSON

MEMORANDUM

DATE: March 30, 2023

TO: Tucson-Pima County Joint Consolidated Code Committee

FROM: Tim M Thomure, PE
Interim Director
Deputy City Manager
Executive Secretary
City of Tucson

SUBJECT: Modifying 2018 International Plumbing Code and 2018 International Residential Code to require use of EPA WaterSense Certified Fixtures in all new development

Commented [CT1]: Suggested addition per Kenneth Cawthorne

Issue: This proposed amendment is to modify the current 2018 International Plumbing Code to require use of EPA WaterSense Certified Fixtures in all development. The proposal to require WaterSense fixtures is one part of three currently active water conservation updates in progress that were directed by Mayor and Council during a October 18, 2022 study session to discuss water conservation measures related to the City Drought Response. (See Attachment A for the Legal Action Report from the October 18, 2022 study session).

Background: WaterSense is a federally authorized, voluntary program sponsored by the EPA (established in 2006) that certifies water-efficient products and provides efficiency standards for plumbing fixtures, irrigation controllers and sprinklers. WaterSense-labeled products and services are certified to use at least 20 percent less water, save energy, and perform as well as or better than regular models. The following are examples of required flow rates of typical WaterSense fixtures:

EPA WaterSense Fixtures Specifications

Fixture	Maximum Flow Rate
Tank-Type Toilets	1.28 gallons/flush
Lavatory Faucets	1.5 gpm at 60 psi
Flushing Urinals	0.5 gallons/flush
Flushometer-Valve Toilets	1.28 gallons/flush
Showerheads	Equal to or less than 2.0 gallons per minute

Research: To inform this proposal, staff conducted a review of municipalities in the region that have already added a requirement for WaterSense fixtures. Examples include, The Town of Sierra Vista and Cochise County, Arizona, which require that new home development meets or exceeds the Environmental Protection Agency (EPA) WaterSense specifications for residential interior plumbing design and for exterior water-use system design. Sierra Vista's ordinance was passed in 1999 and they report no concerns from the public or customers about this ordinance since its initial passing. Since costs are very similar between WaterSense and conventional fixtures, developers

have been generally supportive since the beginning. Many states also have WaterSense-based efficiency standards such as Nevada, Texas, California, Georgia, and Colorado.

Benefits:

- *Benefits to the Customer:* Any water and energy savings will result in utility cost-savings to the customer. The EPA estimates that, just for toilets, the customer will save over $140 annually, and more than $2,900 over the lifetime of the toilet. If paired with the multitude of other fixtures, the short and long-term cost savings will be significant.
- *Benefits to the City:* Benefits would be associated with increased water efficiency of new development. At a certain point (of efficiency), the infrastructure requirements (e.g. pipe sizing) to serve new growth might be reduced; however, this one measure alone would not achieve this.

Outreach: Between the October 16, 2023 Mayor and Council study session where this amendment was initiated and now, Planning and Development Services Department (PDSD) and Tucson Water have presented to several stakeholder groups including holding a Water Conservation Code Amendment Stakeholder Meeting (online, public, publicized via PDSD and Tucson Water email stakeholder lists and social media) on February 1, 2023. In general, stakeholders have either supported or have not expressed concern related to a new requirement for WaterSense Certified fixtures. Some of the feedback received during this outreach was related to the importance of a set process to verify the installed WaterSense fixtures during inspections and a suggestion to coordinate with local suppliers to ensure adequate product supply and to provide education for users.

Present Consideration(s): Staff proposes the following amendment to the International Plumbing Code and International Residential Code

1. **Section 604 and TABLE 604.4** of the International Plumbing Code are hereby amended to read as follows:

   604.4 Maximum flow and water consumption. The maximum water consumption flow rates and quantities for all plumbing fixtures and fixture fittings shall be in accordance with Table 604.4~~.~~ and such fixtures and fixture fittings shall be Environmental Protection Agency (EPA) WaterSense Certified fixtures or ~~meet or exceed~~ within the maximum flow or quantity required of WaterSense Certified fixtures, excluding fixture types that are not included under the WaterSense Program.

   Commented [CT2]: Suggested revision per Bob Sherry

   Exceptions:
   1. Blowout design water closets having a water consumption not greater than 3 ½ gallons (13L) per flushing cycle.
   2. Vegetable sprays.
   3. Clinical sinks having a water consumption not greater than 4 ½ gallons (17L) per flushing cycle.
   4. Service sinks.

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5. Emergency showers.
~~5.~~6. Replacement of existing fixtures that do not require a permit.

Commented [CT3]: Suggested addition by Tucson Water

Table 604.4
MAXIMUM FLOW RATES AND CONSUMPTION FOR
PLUMBING FIXTURES AND FIXTURE FITTINGS

PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY[b]
Lavatory, private	~~2.2 gpm at 60 psi~~ 1.5 gpm at 60 psi
Lavatory, public (metering)	0.25 gallon per metering cycle
Lavatory, public (other than metering)[c]	0.5 gpm at 60 psi
Shower head~~[a]~~ [a]	~~2.5 gpm at 80 psi~~ 2.0 gpm at 80 psi
Sink faucet	~~2.2 gpm at 60 psi~~ 1.8 gpm at 60 psi
Urinal	~~1.0 gallon per flushing cycle~~ 0.5 gallon per flushing cycle
Water closet	~~1.6 gallons per flushing cycle~~ 1.28 gallon per flushing cycle

Commented [CT4]: Suggested revision per Dennis Coon

Commented [CT5]: Suggested addition per Clayton Trevillyan

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For SI: 1 gallon = 3.785 L, 1 gallon per minute = 3.785L/m,
1 pound per square inch = 6.895 kPa
a. A hand-held shower spray is a shower head
b. Consumption tolerances shall be determined from referenced standards.
~~b.~~c. Refer to amended Section 419.6

2. **Section P2903.2 and Table P29003.2** of the International Residential Code are hereby amended to read as follows:

Commented [CT6]: Suggested addition per Kenneth Cawthorne

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P2903.2 Maximum flow and water consumption. The maximum water consumption flow rates and quantities for plumbing fixtures and fixture fittings shall be in accordance with Table P2903.2 and such fixtures and fixture fittings shall be Environmental Protection Agency (EPA) WaterSense Certified fixtures or within the maximum flow or quantity required of WaterSense Certified fixtures, excluding fixture types that are not included under the WaterSense Program.

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Exceptions:
1. Replacement of existing fixtures that do not require a permit

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Table P2903.2
MAXIMUM FLOW RATES AND CONSUMPTION FOR
PLUMBING FIXTURES AND FIXTURE FITTINGS[b]

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PLUMBING FIXTURE OR FIXTURE FITTING	MAXIMUM FLOW RATE OR QUANTITY[b]
Lavatory faucet	~~2.2 gpm at 60 psi~~ 1.5 gpm at 60 psi
Shower head[a]	~~2.5 gpm at 80 psi~~ 2.0 gpm at 80 psi
Sink faucet	~~2.2 gpm at 60 psi~~ 1.8 gpm at 60 psi
Water closet	~~1.6 gallons per flushing cycle~~ 1.28 gallon per flushing cycle

For SI: 1 gallon per minute = 3.785L/m, 1 pound per square inch = 6.895 kPa

a. A hand-held shower spray shall be considered to be a shower head

b. Consumption tolerances shall be determined from referenced standards.

Commented [CT7]: Suggested revision per Dennis Coon

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Staff Recommendation: Staff recommends the Tucson-Pima County Consolidated Code Committee recommend Modifying 2018 International Plumbing Code and the 2018 International Residential Code to require use of EPA WaterSense Certified fixtures or equivalent in all new development.

Attachments/Enclosures
A: Legal Action Report from the October 18, 2022 study session

XX/xx or XX/XX/xx -

C: First Name, Last Name, Title