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Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
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Via regulations.gov:

Re: Comments of the International Code Council on the Environmental Protection Agency's (EPA) Water Reuse Action Plan (WRAP), Docket Number EPA-HQ-OW-2019-0174

The International Code Council (ICC) is a non-governmental organization, driven by the engagement of its 65,000 members, that is dedicated to helping the building community and the construction industry provide safe, resilient, and sustainable construction through the development and use of model codes (I-Codes) and standards used in the design, construction, and compliance processes. Most U.S. states and communities, federal agencies, and many global markets choose the I-Codes to set the standards for regulating construction, plumbing and sanitation, fire prevention, and energy conservation in the built environment. ICC appreciates the opportunity to submit the following comments on the draft Water Reuse Action Plan (WRAP) in the above-named matter before EPA.

The Code Council has facilitated the development of several voluntary, consensus-based codes and standards that promote water reuse, rainwater harvesting, and water efficiency. ICC urges EPA to broaden draft WRAP recommendation 2.2 to encourage education of state and local governments on these codes and standards and to promote their use through programmatic incentives. The Code Council also strongly urges EPA to commit to developing under draft WRAP recommendation 2.3 national nonpotable water standards or guidelines with common nomenclature, which would promote regulatory cohesion and the consistency necessary for businesses to develop low-cost water reuse products and systems.

I. Widely Utilized Codes and Standards Currently Enable Water Reuse

The Code Council promotes water reuse and the protection of our potable water sources through several codes and standards. These codes and standards are “voluntary consensus standards” under Office of Management and Budget (OMB) Circular A-119, meaning they are developed in an open forum— with a balance of interests represented and due process—that, ultimately, ensures a consensus outcome.

The 2018 International Plumbing Code (IPC) and International Residential Code (IRC) provide requirements governing the construction, installation, alteration, and repair of on-site nonpotable water reuse systems, nonpotable rainwater collection and distribution systems, and reclaimed water systems. The IPC and IRC’s provisions encompass location, materials, sources, filtration, disinfection and treatment, storage tanks, testing, and inspections. They also address the utilization of nonpotable water through subsurface landscape irrigation systems. The IRC is in use or adopted in 49 states, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands. The IPC is the most widely adopted plumbing code in the nation, and is in use or adopted in 37 states, the District of Columbia, Guam, and Puerto Rico. The

General Services Administration (GSA) requires compliance with the IRC and IPC for all civilian governmental buildings¹ and the Department of Defense (DOD) requires compliance with the IPC for all U.S. military bases.²

The 2018 International Green Construction Code (IgCC), a collaboration between the Code Council, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the U.S. Green Building Council (USGBC), and the Illuminating Engineering Society (IES), establishes maximum plumbing fixture consumption rates, which reduce potable and nonpotable water use. The IgCC encourages water reuse by requiring greater utilization of nonpotable water for irrigation systems, prohibiting the use of potable water for roof spray systems, limiting once-through potable water use in HVAC systems, and requiring water consumption monitoring. The IgCC is the most widely used green construction code in the nation and is in use or adopted in 16 states and the District of Columbia. The GSA requires compliance with the IgCC for all civilian governmental buildings.³

The CSA B805-2018/ICC 805-2018 Rainwater Harvesting Standard, a joint publication between the Code Council and the Canadian Standards Association (CSA), provides jurisdictions with comprehensive system design criteria that ensure water quality appropriate for the category of use. This encourages the use, at broader scales, of rainwater harvesting systems. The standard addresses roof surface rainwater and stormwater used as source water for numerous potable and non-potable applications and provides corresponding performance criteria based on the influent water quality, the system, and the application.

The ASABE/ICC 802-2014 Landscape Irrigation Sprinkler and Emitter Standard, a joint publication between the Code Council and the American Society of Agricultural and Biological Engineers (ASABE), ensures adequate safety and performance of landscape irrigation systems, a prime candidate for reused water. The standard also establishes testing methods that EPA's WaterSense program utilizes to quantify product performance for pressure-reducing sprinkler bodies.

Finally, the BSR/RESNET/ICC 1101-201x Water Rating Index Standard, a soon to be finalized joint publication between the Code Council and the Residential Energy Services Network, establishes a Water Rating Index to compare water use performance of an actual home against a reference home. This data ultimately could be used to establish water resource management planning.

II. EPA Should Broaden Draft WRAP Recommendation 2.2 to Leverage Existing Codes and Standards to Promote Water Reuse

The National Technology Transfer and Advancement Act of 1995 and OMB Circular A-119 generally require federal agencies and departments to "use technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments." As detailed above, ICC's codes

¹ General Services Administration, *Facilities Standards for Public Buildings Service ("GSA P-100")* (July 2018), available at https://www.gsa.gov/cdnstatic/2018%20P100%20Final%20Updated%2010-16-18_0.pdf.

² Department of Defense, *Unified Facilities Criteria, DoD Building Code (General Building Requirements)* (Oct. 2019), available at https://www.wbdg.org/FFC/DOD/UFC/ufc_1_200_01_2019.pdf.

³ GSA P-100.

and standards promote both water efficiency and the reuse of graywater, rainwater, and reclaimed water. Although voluntary, these codes and standards are widely used by states and localities. But their use could be greater and EPA can help—by broadening draft WRAP recommendation 2.2 (Coordinate and Integrate Federal, State, Tribal, and Local Water Reuse Programs and Policies) to include copromotion with codes/standards developers of existing water reuse codes/standards and programmatic incentives to encourage codes/standards for reuse.

The Code Council supports recommendation 2.9.2 and stands ready to aid EPA in educating state and local governments and plumbing professionals on the technical requirements, application, and benefits of the water reuse provisions within existing codes and standards. These codes and standards have already been developed and can be leveraged in communities at no cost. Copromotion could also take place through EPA's and ICC's websites, at conferences, and in training materials and guidebooks. EPA's participation in code development is also important, through which the Agency can work to ensure that plumbing code provisions are updated to reflect the latest in water science and reuse technology.

Such an approach would track the Federal Emergency Management Agency's (FEMA) work to encourage the adoption and enforcement of building codes at the state and local levels. FEMA has multiple webpages dedicated to building codes' benefits,⁴ and provides guidance and tools on building codes for property owners, engineers and design professionals, building code officials, and the general public.⁵ FEMA is an active participant in the code development process, where it advocates for code changes based on its building science research and post-disaster after action reports.

FEMA promotes code activities because they advance Agency priorities—mitigating loss of life and damage to property following natural disasters and helping to minimize federal recovery spending. EPA should do so for similar reasons—promoting reuse through codes will advance agency priorities, boosting safe and reliable water supplies and improving localized water availability when adverse events shut down centralized water treatment systems.

EPA should also consider advancing water reuse through codes and standards at the state and local levels through federal programmatic incentives. Again, doing so would track FEMA's successful model. Even where it does not have a statutory mandate to do so, FEMA has chosen to incentivize jurisdictions to adopt and utilize the latest codes by making grant applications more competitive based on a jurisdiction's adoption of the latest codes⁶ and by providing technical assistance funding to aid jurisdictions in code adoption.⁷

The Department of Energy has also successfully incentivized state and local code adoption through federal grants. Under the American Recovery and Reinvestment Act (ARRA), \$3.1 billion in State Energy

⁴ See, e.g., <https://www.fema.gov/building-codes-toolkit>; <https://www.fema.gov/building-codes>.

⁵ <https://www.fema.gov/building-codes-toolkit>.

⁶ Department of Homeland Security, *Notice of Funding Opportunity FY 2018 Pre-Disaster Mitigation* (Aug. 3, 2018), available at https://www.fema.gov/media-library-data/1543426158991-442d3743052e6ab476094f8019ff9ea4/FY2018PDMNOFO_lh.pdf.

⁷ FEMA, *Hazard Mitigation Assistance Guidance Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program* (Feb. 2015), available at https://www.fema.gov/media-library-data/1424983165449-38f5dfc69c0bd4ea8a161e8bb7b79553/HMA_Guidance_022715_508.pdf.

Program (SEP) grants were tied to the adoption and enforcement of the latest edition of model energy codes—the then 2009 IECC and ASHRAE 90.1-2007 (applicable to commercial buildings). As of September 2009, only two states met or exceeded the 2009 IECC or ASHRAE’s 90.1-2007 efficiency standard. By January of 2011 approximately 30% of states had adopted codes that met or exceeded ARRA’s energy code requirement. To date more than half of states have continued to adopt more current codes and only two states that adopt statewide codes are on code editions older than the ARRA targets.

ICC encourages EPA to build on FEMA and DOE’s approach by incentivizing jurisdictions to adopt codes and standards that promote water efficiency and reuse. For example, EPA could give greater weighting to Water Infrastructure Finance and Innovation Act (WIFIA) applications (a program that can fund reuse activities) based on the jurisdiction applicant’s adoption of these codes and standards (where the jurisdiction is using these codes/standards to encourage reuse). The Agency may also have existing authority to provide technical assistance funding to aid jurisdictions in such adoptions through EPA’s State and Tribal Assistance Grants.

III. EPA Should Commit to Developing Water Quality Standards or Guidelines for Reuse under Draft WRAP Recommendation 2.3

EPA could overcome one of the most prominent barriers to water reuse by promoting water quality standards or, at minimum, guidelines for nonpotable end uses. States and local governments currently establish such standards on a case by case basis. Some jurisdictions prohibit nonpotable water reuse outright, while others have no regulations. Some states have well-established water quality requirements for certain source types (e.g., graywater) but not others (e.g., rainwater). Other jurisdictions have adopted individualized requirements that differ from existing codes and standards.

EPA could encourage standardization by promoting the national adoption of existing nonpotable water quality standards or guidelines for reuse and by developing standards or guidelines in those areas that currently lack them. For example, the disinfection and treatment for graywater used in the flushing of water closets and urinals is addressed in the IRC and IPC through the NSF 350 standard. The nonpotable and potable reuse of harvested rainwater is also addressed in the CSA B805-2018/ICC 805-2018 Rainwater Harvesting System standard. EPA should leverage these nationally recognized standards such as these by promoting their use across the country and recommend water quality standards or guidelines for other nonpotable water source end uses.

Once standards or guidelines are established, product certification bodies can be leveraged to ensure water reuse products and systems comport to those guidelines. This approach tracks EPA’s use of private sector product certification bodies to certify product conformance to WaterSense, a public-private partnership that has helped Americans save a cumulative 3.4 trillion gallons of water and more than \$84.2 billion in water and energy bills.⁸ Given WaterSense’s success and the corresponding value

⁸ https://www.epa.gov/sites/production/files/2019-06/documents/ws-aboutus-2018_watersense_accomplishments.pdf.



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consumers place on the WaterSense label, EPA could also consider incorporating water reuse provisions into future home and commercial labeling programs.

EPA's establishment of nationally applicable standards would provide the greatest certainty for reuse markets. But EPA endorsed guidelines, either as in place of standards or as an interim step toward standard development, would also provide meaningful benefits over the status quo as long as the guidelines provide sufficient direction. Although compiling national and international approaches and literature on fit-for-purpose specifications is a helpful first step towards establishing guidelines, such an effort alone does not provide adequate guidance to markets absent EPA's distilling these proposals and recommendations into guidelines. For that reason, the Code Council urges EPA to commit to developing national guidelines or standards under draft WRAP recommendation 2.3 (Compile and Refine Fit-for-Purpose Specifications).

Variations in the interpretation of common water reuse terminology (e.g., graywater, stormwater, rainwater, and reclaimed water) across jurisdictions also hinders the establishment of common practices. EPA could help address this challenge by adopting common definitions for these frequently used terms. The IRC, IPC, and IgCC define graywater, stormwater, rainwater, and reclaimed water, and these codes are the most commonly used codes of their type across the country. Their widespread adoption, and use by GSA, DOD, FEMA, and other federal agencies, are testament to their thoroughness and relevance. For those reasons, the Code Council encourages EPA to adopt the definitions established in these codes. Importantly, in adopting either these definitions or water quality guidelines, EPA need not mandate them—it simply needs to encourage their use by providing clear guidance and technical support to jurisdictions. ICC would also welcome the opportunity to work with the Agency, other standards developers, relevant industry associations (e.g., Plumbing Manufacturers International), and other stakeholders to standardize nomenclature.

Finally, as the draft WRAP notes, additional, coordinated, research is necessary to advance the Plan, which will help address any gaps across the profile of guidelines or standards EPA develops for reuse and ensure those guidelines/standards are further refined as needed. The Code Council supports recommendation 2.7.3, which speaks to this research investment, but urges EPA clarify that research investments should be coordinated with codes and standards developers, like ICC, to ensure this research is translated into applied practices in the field.

Thank you for the opportunity to provide comments. If you have any questions concerning ICC's proposals, please do not hesitate to contact me.

Sincerely,

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