

## WaterSense® New Homes Draft Specification Public Meeting Summary April 19, 2012

This meeting discussed the proposed modifications to the *2009 WaterSense Single-Family New Home Specification* and the U.S. Environmental Protection Agency's (EPA's) supporting rationale for the revision. The objectives of this meeting were to:

1. Explain the WaterSense specification development process
2. Review the specific modifications proposed
3. Gather input on the implementation of the specification modifications

Featured speaker:

- Jonah Schein, EPA, Washington, D.C.

Facilitator:

- Roy Sieber, Eastern Research Group, Inc. (ERG), Chantilly, Virginia

Please see the accompanying PowerPoint presentation or contact the WaterSense Helpline at [watersense@epa.gov](mailto:watersense@epa.gov) if you have any questions.

### Background

WaterSense is a voluntary partnership and labeling program launched by EPA in 2006. The WaterSense label is a simple way for consumers to identify products and homes that use at least 20 percent less water than standard models or typical new homes. EPA relies on industry representatives and other interested parties with experience in the design, manufacture, building, and installation of water-efficient products and homes to develop WaterSense specifications that then determine a product or home's eligibility to earn the WaterSense label.

The specification development process includes the following:

- **Technical analysis and market research:** Research is conducted to identify how water-efficient products are differentiated from standard counterparts, as well as the existence of widely accepted performance and efficiency standards/specifications for those products. The research estimates the water and cost savings from national adoption of the water-efficient product(s), environmental impacts, and the level of stakeholder support.
- **Notice of intent (NOI):** The NOI identifies data gaps and research needs to stakeholders and solicits input on outstanding technical issues. Upon publication, EPA works with key stakeholders to define important performance attributes and evaluation methods. This work may be done through consensus-based standards development groups or through less formal stakeholder groups.
- **Draft specification:** A draft specification is issued once technical questions and information gaps are adequately addressed. To the extent possible, the draft specification is based on existing standards and specifications. There is an opportunity

for formal public comment on specific product evaluation criteria and performance levels. The draft specification is released with a supporting statement, which provides rationale and justification for water-efficiency and performance criteria. The draft specification also indicates the water savings potential and describes the cost-effectiveness of the specification for consumers.

- Final clarifications: EPA considers and resolves comments received on the draft specification, during which it publishes public comments and responses, the public meeting presentation, and a summary of the presentation.
- Certification and labeling: EPA establishes a third-party infrastructure for certifying products to meet specification criteria for water efficiency and performance.

### **NOI to Modify the WaterSense Specification for Single-Family New Homes**

EPA has determined that modifications to the new homes specification released in December 2009 are warranted because the home building market is significantly different today than when the specification development process originally began. For example, new product technologies have entered the market since the specification's release. EPA has also obtained feedback from builders and stakeholders in the first two years of labeling new homes that can be used to fine-tune specification criteria. In addition, the modification provides an opportunity to expand the program to new builders and stakeholders (e.g., multi-family buildings and builders).

The most significant proposed change to the new homes specification is to allow units in multi-family buildings to earn the WaterSense label. This will require associated changes to various specification technical criteria, inspection, and certification elements. The proposed modification would also update product requirements and adjust landscape design criteria.

### **Proposed Scope of the Modifications**

The current scope applies to: newly constructed, single-family homes and townhomes of three stories or less, which excludes units in multi-family buildings. WaterSense has received numerous requests for labeling of units in multi-family projects. Technical reviews of these requests have uncovered minimal barriers to the inclusion of multi-family buildings in the scope of the new home specification. For this reason, WaterSense believes that the scope of the new home specification should be expanded to include multi-family buildings.

Furthermore, expanding the new home specification would align it with the ENERGY STAR® program, which qualifies units in multi-family buildings of three stories or less or multi-family buildings of four or five stories for the ENERGY STAR label. This includes mixed-use buildings that have their own heating, cooling, and hot water systems, separate from other units.

EPA envisions the following scope for harmonizing the WaterSense new home specification with ENERGY STAR:

- Single-family homes and townhomes
- OR
- Residential units in multi-family buildings of three stories or less in size
- OR

- Residential units in multi-family buildings, including mixed-use buildings, that have independent heating, cooling, and hot water systems separate from other units

### **Proposed Modifications to Product Requirements**

EPA is proposing updates to the existing requirements of the new home specification because many of the product requirements predate WaterSense specifications for those products. The specification currently allows for a maximum combined flow rate of 2.5 gallons per minute (gpm) for showerheads. The modified new home specification would require all showerheads to be WaterSense labeled and adjust the total flow rate for multiple showerheads to 2.0 gpm. The modified specification would also require that all irrigation systems use WaterSense labeled controllers if weather-based irrigation controllers are used. In addition, EPA has allowed for the continued use of sensor-based controllers and adjusted the feature requirements to be more in line with what is included in the final specification for WaterSense labeled controllers. EPA continues to look into an enforcement date for this requirement to ensure builders have enough products to choose from so as not to unnecessarily restrict the number of products available.

### **Proposed Modifications to Landscape Design**

EPA currently allows two options for complying with landscape requirements. Specifically, these are:

- Regionally based allocations determined using the WaterSense Water Budget Tool  
OR
- Maximum turf allocation determined using a set percentage (i.e., 40 percent) of the landscaped area

The proposed modification would require use of the Water Budget Tool and would eliminate the turf allocation option.

After two years of use, the Water Budget Tool is more familiar to and used by many WaterSense stakeholders. It has been used in the vast majority of WaterSense labeled homes to date and is harmonized with the LEED® for Homes 2012 rating system. The Water Budget Tool provides more flexibility in landscape design, applies to a broader range of landscapes, takes into account local weather patterns, and rewards projects for making more water-efficient landscape design and irrigation choices.

### **Comments, Questions, and Answers**

All comments, questions, and responses received or provided during the public meeting are summarized below. Discussions are grouped by topic and follow the order of the meeting agenda.

#### *Proposed Scope of Modification*

**Q:** For the inspection checklists, does EPA plan to ask the building code community for its input? (Dyke Spencer, Powdersville Water District)

**A:** Currently, EPA has circulated the inspection checklists among WaterSense providers and inspectors. EPA will certainly consider circulating them more broadly to the code official community as well.

**Q:** Will the specification require separate metering for the pool and common-use irrigation, or can the same meter be used for both? (Kathy Nguyen, Cobb County Water System)

**A:** As currently written in the draft specification, separate meters are required to meet the outdoor water use criteria. If any builder or other meeting participant believes EPA should reconsider this approach, please submit a public comment to EPA on this topic.

**Q:** How much of a departure from current building practices is the requirement to have a meter for every unit in a multi-family building? Is that something that would add significant costs, or is it already common practice? I don't know if builders will find this criterion to be objectionable. (Frank Kinder, Colorado Springs Utilities)

**A:** Based on EPA's preliminary research, there are no consistent practices for metering of multi-family building units. EPA encourages any builder or other meeting participant who is knowledgeable on the matter to submit comments to EPA if they believe such a requirement would pose a significant burden to builders.

**Q:** Regarding the distinction between residential and commercial landscape designs, won't this involve new stakeholders, contractors, or even licensing? (Tom Reynolds, Water Balance, LLC)

**A:** That is certainly a possibility with multi-family buildings; however, local requirements for the different types of licensing would still apply. EPA is aware that there is an educational burden in terms of reaching out to new stakeholders and educating new users; however, EPA does not believe that the specification will need to differentiate between commercial and residential stakeholders.

**Comment:** I believe that the specification should differentiate between commercial and residential stakeholders, particularly since commercial projects pose greater public safety and liability concerns. Also, the specification should consider any differences that may arise from builders conforming to commercial versus residential building standards.

**A:** If any builder or other meeting participant has any comments or concerns on the matter, EPA encourages them to submit their comments to us, so that our technical team can review whether any portions of the specification would not be covered by local licensing and legal processes.

**Q:** Can you elaborate on the rationale for having the WaterSense specification yield to ENERGY STAR requirements for always-on recirculating water pumps? (Chuck De Smet, FloLogic, Inc.)

**A:** EPA has reviewed field studies that show conflicting information about the water savings potential of temperature-based, always-on recirculation systems. At the same time, these studies consistently demonstrate significant impacts on energy use, due to the constant use of energy to heat the recirculated water. Even though water efficiency is the primary focus of the WaterSense program, we do not want to promote it at the expense of energy efficiency. EPA has good data on the water savings potential of on-demand systems, which it knows uses less energy than always-on recirculation systems. For this reason, EPA has allowed the use of on-demand recirculation systems in the specification.

**Q:** We have noticed that, nationally, utilities are more likely to classify multi-family buildings as commercial buildings, rather than as residential buildings. We believe this makes a big difference in how utilities meter their services (i.e., gas, sewer, electric, water). Does EPA have any input on this issue? (Larry Acker, ACT Inc. Metlund Systems)

**A:** EPA has observed a lack of consistency on how local jurisdictions classify residential multi-family buildings. Do you have any examples of problems arising from this lack of consistency, or do you believe this is an issue EPA will have to address from an educational outreach standpoint?

**Comment:** What we are finding is that most multi-family buildings are classified as residential structures; however, we believe that the classification can affect the type of metering programs that utilities would apply to new homes.

**Q:** Regarding the specification requirement for no more than one half-gallon of water flow from the hot water delivery system. I assume this measure is a total volume from the hot water source to the fixture? (Larry Acker, ACT Inc. Metlund Systems)

**A:** It would be one half-gallon, as measured from either the recirculation loop or the water heater.

**Q:** Is there a reason why EPA selected 0.5 gallons for the hot water distribution metric? (Larry Acker, ACT Inc. Metlund Systems)

**A:** EPA has posted all of our comments and decision-making processes for that value online. We recommend that any interested participant review the EPA website at [www.epa.gov/watersense/new\\_homes/homes\\_final.html](http://www.epa.gov/watersense/new_homes/homes_final.html).

**Comment:** I believe 0.5 gallons is a lot of water. Users will have to wait a long time for hot water to reach the fixture, and this wait may contribute to additional water usage, since users are more likely to run the water and walk away.

**Q:** Can multi-family buildings of three stories or less use any type of hot water delivery system, so long as it meets the half-gallon water flow requirement? (Larry Acker, ACT Inc. Metlund Systems)

**A:** This is correct. If the hot water delivery system does not meet the specification requirement from a design standpoint, then builders will need to utilize technology that isn't prohibited in the specification, such as hot water recirculation systems or on-demand water heating systems. Note that the specification prohibits the use of time- or temperature-based recirculation or always on circulation loops.

**Comment:** I understand and agree there are several ways to meet the half-gallon requirement; however, I believe that 0.5 gallons is too great of a volume to allow for the efficient delivery of hot water. This volume would be equivalent to running a 45- to 50-foot line to the fixture.

**Q:** Are you seeing any price options from providers and inspectors such as a package deal with regard to inspecting multi-family units? (Frank Kinder, Colorado Springs Utilities)

**A:** EPA is not able to provide pricing options for providersinspectors. Builders should contact LCPs individually to get quotes.

**Q:** Are there any standardization techniques or technologies in the demand actuated systems that multi-family builders have embraced if they are unable to meet it from a design standpoint? (Frank Kinder, Colorado Springs Utilities)

**A:** EPA does not endorse any one technology, but several techniques are available in the builder guidance at [www.epa.gov/watersense/new\\_homes/homes\\_final.html](http://www.epa.gov/watersense/new_homes/homes_final.html) to assist builders in meeting this requirement.

**Q:** What is the logic behind the requirement of a multi-family building larger than three stories having individual unit heating and cooling equipment, as well as water heating equipment? (Chris McTaggart, Building Efficiency Resources)

**A:** EPA extended this requirement to include individual heating and cooling units because when you move to central heating and cooling, a cooling tower could be a substantial use of water and there aren't any criteria to address that water use in the current specification. It would require a fundamental change in how EPA looked at the water use in the building.

**Q:** What is the benefit of stating a specific story requirement for having individual unit water heating equipment? (Chris McTaggart, Building Efficiency Resources)

**A:** The reason central boiler systems are allowed in multi-family buildings three stories or less is to strike a happy medium, as building codes in these types of buildings tend to be more residential than taller buildings. This would allow a building to meet the specification criteria using a centrally located source, several centrally located sources, or an on-demand recirculation system.

**Q:** Smaller municipalities do not always have the resources to monitor multiple sub-meters for a multi-unit facility. In many instances, they use a master meter for each building and would fall under the purview of the management of the complex. Would this be how WaterSense envisions the individual metering working? (Sara Borgers, City of Brighton)

**A:** Yes, EPA has tried to leave the door open not only for meters and sub-meters, but also for alternative technologies that can track water use on a per-unit basis. WaterSense is aware that how the unit is metered is up to the utility and varies from district to district.

**Q:** What is the basis for the sub-metering aspect of the specification, and how will the data be used? (Tom Reynolds, Water Balance, LLC)

**A:** The WaterSense label applies to the home as it is built. WaterSense is concerned with setting up a system that is capable of determining how much water is being used at each unit from an educational and behavioral standpoint, as well as from a management standpoint to identify where leaks might be present. All comments and EPA responses will be posted to the WaterSense website as EPA moves forward from the draft to final specification.

**Comment:** Chapel Hill, NC has had more than 30 apartment complexes install sub-metering systems serving a total of about 5,700 apartments. They did this for economic reasons—to pass on the costs of water and sewer services directly to the residents and more equitably distribute those costs to the tenants. Some of these are new apartment complexes, and some are existing complexes that found it was technically and economically feasible to retrofit for sub-meters. They contract out the sub-meter installation, remote reading, and billing services. The Town of Chapel Hill has mandated installation of sub-meters for some new multi-family

development projects that went through the special use/conditional use permit process. We have looked at before-retrofit and post-retrofit use for these sub-metered complexes and found the average daily water use per dwelling unit is about 20 percent less for the sub-metered complexes. We master-meter these complexes, and they re-bill their tenants. (Patrick Davis, Orange Water and Sewer Authority)

*Proposed Modifications to Product Requirements: Showerheads and Irrigation Controllers*

**Q:** Has there been discussion on pressure-regulating sprinkler heads? (Tom Kundrat, Rainbird)

**A:** The guidance EPA gives to irrigation partners is that the flow rate of the sprinkler head should be determined by the manufacturer recommended range.

**Q:** Are WaterSense labeled controllers currently available in the marketplace? (Sean Golden, Yamasaki Landscape Architecture)

**A:** Yes, a list of labeled controllers can be found on the WaterSense website at [www.epa.gov/watersense/product\\_search.html](http://www.epa.gov/watersense/product_search.html).

*Proposed Modifications to Landscape Design*

**Q:** The Water Budget Tool lets the user classify turfgrass as a low water-using plant. Will there be logical controls as to what constitutes turfgrass? (Kent Sovocol, Southern Nevada Water Authority)

**A:** Typically, local resources influence how plants are classified. While there isn't a national resource, builders and landscape designers have to provide the local resource and demonstrate why they think it's a legitimate claim that this would be classified as a low water-using turfgrass. WaterSense has integrated some local plant lists in the Water Budget Tool and on its website at [www.epa.gov/watersense/outdoor/what\\_to\\_plant.html](http://www.epa.gov/watersense/outdoor/what_to_plant.html). Stakeholders are encouraged to submit local resources that are not listed to assist in building the catalog.

**Comment:** In Michigan, there is an interactive low impact development (LID) planting guide available through the Southeast Michigan Council of Governments at [www.semco.org/LowImpactDevelopment.aspx](http://www.semco.org/LowImpactDevelopment.aspx). (Dendra Best, Wastewater Education)

*Other Questions and Comments*

**Q:** What is the process for including leak detection technology in the WaterSense new homes specification? (Chuck De Smet, FloLogic, Inc.)

**A:** If your organization has a technology that you think will be useful, please submit this information to [watersense@epa.gov](mailto:watersense@epa.gov), and it will be reviewed by the WaterSense technical team.

**Q:** Does EPA see the opportunity for grants to assist communities to buy meters in bulk? (Dendra Best, Wastewater Education)

**A:** Due to budgetary constraints, grant assistance from EPA is not available at this time.