

## WaterSense® New Homes Notification of Intent Public Meeting Proposed Modification to the WaterSense New Homes Specification January 18, 2012

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

1. Explain the WaterSense specification development process
2. Review and clarify the notification of intent (NOI)
3. Review the specific modifications proposed
4. Discuss stakeholder feedback and research to date
5. Gather input on the path forward for the specification modifications

Featured speaker:

- Jonah Schein, U.S. Environmental Protection Agency (EPA), Washington, D.C.

Facilitator:

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

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. It is a simple way for consumers to identify products and homes that use at least 20 percent less water. EPA relies on industry and other interested parties with experience in the design, manufacture, building, and installation of water-efficient products and homes to develop WaterSense specifications.

The specification development process consists of:

- Technical analysis and market research: Research is conducted to identify how water-efficient products are differentiated from their standard counterparts, as well as the existence of widely accepted performance and efficiency standards/specifications for those products. The research estimates water and cost savings from national adoption of the water-efficient product, environmental impacts, and the level of stakeholder support.
- Publication of a NOI: The NOI identifies data gaps and research needs to stakeholders and solicits input on outstanding technical issues. EPA begins working 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 this phase, EPA 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, which was released in December 2009, are warranted because the home building market is significantly different today than when the specification development process originally began. New product technologies are available in the marketplace that were not included in the specification. 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. The modification also 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 homes 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. At present, homes in multi-family buildings fall outside this scope. WaterSense has received numerous requests for labeling of homes in multi-family projects. Technical reviews of these requests have uncovered minimal barriers to the inclusion of multi-family buildings into the scope of the new homes specification. For this reason, WaterSense believes that the scope of the new homes specification should be expanded to include multi-family buildings.

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

EPA envisions four possible options for harmonizing the WaterSense new homes specification with ENERGY STAR. These options include the following:

1. Complete harmonization with the ENERGY STAR label: The WaterSense specification would include single-family homes; units in multi-family buildings with three stories or

- less; and units in multi-family buildings with four or five stories that have their own heating, cooling, and hot water systems, separate from other units; or
2. Differentiation based on building height: The specification would include single-family homes or units in multi-family buildings of three stories or less; or
  3. Differentiation based on a combination of building height and mechanical systems: The specification would include single-family homes; units in multi-family buildings with three stories or less; or units in multi-family buildings that have their own heating, cooling, and hot water systems, separate from other units; or
  4. Differentiation based on mechanical systems alone: The specification would include single-family homes or units in multi-family buildings that have their own 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 homes 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 gpm for showerheads. The modified new homes specification would require all showerheads to be WaterSense labeled. The modified specification would also require that all irrigation systems use WaterSense-labeled weather-based irrigation controllers.

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

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

1. Regionally-based allocations determined using EPA's Water Budget Tool; or
2. 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 Option 2.

After two years of use, the Water Budget Tool is more familiar to and used by many WaterSense stakeholders. It is been used in the vast majority of WaterSense-labeled homes to date and is harmonized with the LEED® for Homes 2012 rating system.

### **Areas of Requested Feedback**

During the NOI public meeting, EPA requested feedback in several key areas. The following section summarizes each of these areas:

- *Would the current specification requirement for water pressure to be at or below 60 pounds per square inch (psi) be possible for taller multi-family buildings?* Initial research and feedback have indicated that a series of booster pumps and pressure-regulating valves are typically used to control pressure to individual units within these buildings. Model codes typically require pressures between 45 to 85 psi.

- *Would the current specification requirement that less than 0.5 gallons of water be stored between the source of hot water and the furthest fixture be possible for multi-family buildings?* Initial research and feedback have indicated that individual hot water heaters are far more common in new construction. Research has shown that central hot water heating can be achieved in an energy and water-efficient manner.
- *Would the current specification requirement for evaporative cooling systems be possible for multi-family buildings?* Primary research, feedback, and discussions with manufacturers have all indicated that evaporative cooling systems are seldom used in multi-family buildings.

Additional areas where EPA is soliciting input from stakeholders include:

- Would a requirement that multi-family buildings be equipped with technology that tracks water use on a per unit basis be appropriate?
- Would a requirement that multi-family buildings be equipped with technology that tracks water use for an irrigation system be appropriate?
- Is requiring efficient technologies for pools in multi-family projects a better option than considering pools as an aspect of the landscape?

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

The following subsections summarize all comments, questions, and responses received or provided during the public meeting. The discussions are grouped by topic and follow the order of the presentation.

#### *Proposed Scope of the Modifications*

**Comment:** I agree with unit approach, for the reasons stated. (Lois Sorensen, Southwest Florida Water Management District [SWFWMD])

**Comment:** I agree in general that the unit approach is typically best suited for certification; however, I'd like to point out that ENERGY STAR has released a high-rise multi-family building program that labels the entire building and does not require domestic water heating, space heating, and cooling for individual units. Overall, the inspection protocol for that program harmonizes with the single-family homes program. I could see WaterSense taking a similar approach with multi-family buildings. (Chris McTaggart, Building Efficiency Resources [BER])

**Comment:** My company is working on a net-zero energy new construction project in Brooklyn that involves a six-unit multi-family building. We are very interested in having the WaterSense label for these units. I think the individual dwelling unit approach would work. I also think that buildings of various heights will come through the WaterSense labeling program. If there were to be a cap on the number of levels, it probably would be about five or six stories as opposed to three. Perhaps the use of pilot projects would resolve some of the labeling questions over

whether it is best to label individual dwelling or entire buildings. (Robert Scarano, Scarano Architect PLLC)

**Q:** It is not clear what you mean by “unit” as a basis for the new homes specification. There are clear differences between buildings of different sizes where water pressure, fire control systems, heating, ventilation, air conditioning, etc., are different. How could structure not be an aspect of a specification implementation framework? (Steve Via, American Water Works Association [AWWA])

**A:** The term “unit” is in reference to individual dwelling units within a multi-family building. The specification will consider building features such as size and mechanical systems and will not use dwelling units as a basis for the specification.

**Comment:** I’d like to know why ENERGY STAR chose three stories as its limit for buildings with common systems. I think this was due to energy consumption modeling limitations arising in taller buildings. So long as multi-family buildings meet the requirements of the new homes specification, I do not think the number of stories will matter. (Chris McTaggart, BER)

*Proposed Modifications to Product Requirements: Showerheads*

**Q:** Why does WaterSense require a 2.5 gpm showerhead instead of a 1.5 gpm showerhead? It seems that there are many showerheads in the market now that could be used and would yield better results. (Rodney Tilley, Toho Water Authority)

**A:** That is the intention of the modification to the scope of the new homes specification. The current new homes specification requires 2.5 gpm showerheads because WaterSense labeled showerheads weren’t available when EPA finalized the specification in 2009. WaterSense labeled showerheads are now widely available and even include 1.5 gpm showerheads.

**Q:** WaterSense is not looking to reduce the flow rate in this modification, correct? (Rodney Tilley, Toho Water Authority)

**A:** That is exactly what WaterSense is looking to do.

**Q:** I have concerns over the potential for multiple showerhead stalls, unless each head serves a specific function. Otherwise, the use of multiple showerhead stalls could become a way around the flow rate limit. (Lois Sorensen, SWFWMD)

**A:** WaterSense intends to leave room in the specification for multiple shower heads in case they are desired by consumers. All showerheads within a shower compartment will be limited to a total maximum flow rate of 2.0 gpm, for all devices flowing at the same time.

**Comment:** We support the inclusion of the reference to WaterSense labeled showerheads. This inclusion should be accompanied by a provision that relates to the thermal protection of shower valves. We think it would also be appropriate to specify that the valves be tested for thermal protection at a flow rate of 1.5 gpm. (Edward Osann, Natural Resources Defense Council [NRDC])

**Comment:** There are two implications associated with low flow showerheads that are not product related but that WaterSense must consider. The first pertains to the size of the shower

supply lines, particularly on the hot side. Low flow rates increase the time required for hot water to reach the tap. The second implication is that drainlines will not get as much water as they are designed to receive. (Gary Klein, Affiliated International Management, LLC)

*Proposed Modifications to Product Requirements: Irrigation Controllers*

**Q:** Is WaterSense seeking that all weather-based controllers used in new homes will be WaterSense labeled? What will be the target enforcement date? (Richard Allen, Texas Commission on Environmental Quality)

**A:** Yes, that is the intention. If a weather-based controller were to be used, it would need to be WaterSense labeled. The target enforcement date is something that WaterSense will need to determine through discussions with manufacturers and certifying bodies, so that we can ensure enforcement will occur after weather-based controllers are readily available on the market. The target enforcement date will also depend on feedback from our partners and stakeholders.

**Q:** Is WaterSense looking at using weather-based controllers that are water efficient? (Richard Allen, Texas Commission on Environmental Quality)

**A:** Yes. The WaterSense specification for weather-based irrigation controllers provides a detailed description of the requirements for weather-based controllers. It is a new specification, so note that there aren't yet any labeled controllers on the market. WaterSense is confident that once these controllers arrive on the market, they will provide an efficient alternative to conventional weather-based irrigation controllers.

**Q:** Are WaterSense labeled products certified by a third party? (Richard Allen, Texas Commission on Environmental Quality)

**A:** Yes. All WaterSense labeled products are certified by a third-party certifying body.

**Q:** Regarding the weather-based irrigation controller specification, are there any requirements pertaining to the source of the weather information? (Lois Sorensen, SWFWMD)

**A:** The weather-based irrigation controller specification does not list requirements about the information source for controllers. It only requires that they receive reliable information and that they meet performance criteria.

**Q:** Does it matter if the weather information source is a satellite, on-site weather station, or state network? (Lois Sorensen, SWFWMD)

**A:** No, it does not. Product certification relies on the results of performance testing. If a controller is not providing reliable data, it will not pass the performance test and will not be certified.

**Q:** Is WaterSense comfortable that the current test protocol is sufficient to catch problems, when weather can be highly "micro" in nature? (Lois Sorensen, SWFWMD)

**A:** Yes, we are.

**Q:** How does the specification ensure that weather-based irrigation controllers are programmed properly in the field (i.e., that they have correct application rates)? Studies have shown that improperly programmed controllers negate potential water savings. Is there any way the

weather-based irrigation controller specification can ensure that the controllers are properly programmed? (William DeOreo, Aquacraft, Inc.)

**A:** WaterSense requires any irrigation system included with a WaterSense labeled new home to be designed or installed, and audited by a WaterSense irrigation partner. The concerns you mention are something WaterSense has certainly considered throughout the specification development process for weather-based irrigation controllers and is something WaterSense will continue to look at.

**Comment:** A lot of times auditors are more interested in determining distribution uniformity and conducting test can studies. They do not determine actual water use. WaterSense should modify the weather-based irrigation controller specification to require that auditors make an accurate determination of zone application rates and that they program those rates into the controllers. (William DeOreo, Aquacraft, Inc.)

#### *Proposed Modifications to Landscape Design*

**C:** I want to compliment WaterSense on the Water Budget Tool. I think it is very user-friendly. Also, I think it is absolutely vital that WaterSense labeled new homes consume 20 percent less water than comparable non-labeled homes. We have not validated water budgets for new homes post-construction. It seems to me that it would be important to compare water budgets reported for new homes against actual demands, post-construction.

Another concern I have is that I think the Water Budget Tool is subjective. Users may classify water use differently for the same plant, even within the same region. There is no specific guidance for how the tool should be used.

Lastly, I think WaterSense should be open to concepts developed by others. For example, the American Society of Agricultural and Biological Engineers just announced they will develop a water budget standard. Also, SNWA has proposed an “estimated supplemental irrigation demand” concept. The idea behind this proposed concept is that water budgets for landscaping should be based on the quantity of water that must be supplemented from a supply other than rainfall, rather than basing the budget on the total quantity of water required by landscaping, including both rainfall and supplemental water. (Doug Bennett, Southern Nevada Water Authority [SNWA])

**Comment:** It would be good to provide an option for landscapes that do not have turf grass. This way, users would not need to spend time on the water budget tool when they know they would be below their water budget. (Matt Stevens, Green Zone Home)

**Q:** Where can we get a copy of the WaterSense Water Budget Tool? (William DeOreo, Aquacraft, Inc.)

**A:** The WaterSense Water Budget Tool is available on the WaterSense website at: [http://www.epa.gov/WaterSense/water\\_budget/](http://www.epa.gov/WaterSense/water_budget/).

**Q:** The presentation indicates that the majority of WaterSense labeled new homes have used the Water Budget Tool rather than the 40 percent option. Is it too early to come to that

conclusion? What is the geographic distribution of the homes that have been labeled by WaterSense to date? Aren't the majority of these homes in the arid West and Southwest? (Edward Osann, NRDC)

**A:** A number of the labeled homes are in the arid west; however, WaterSense licensed certification providers have labeled homes throughout the Southeast, Northeast, and Northwest.

**Comment:** The underlying concern is that we maintain a specification that is widely accessible. I certainly welcome wider application of the Water Budget Tool; however, I don't want to see builders turned away from the program because they don't have sufficient local infrastructure in the landscape trade that is familiar with the Water Budget Tool. Until everyone is proficient with the tool, we must maintain an alternative compliance path that is builder friendly. (Edward Osann, NRDC)

**Q:** What is EPA's position or status on the use of, or requirement to use, drip or micro irrigation for landscape design? Is there a plan to create a standard test protocol or WaterSense label approach for drip or micro irrigation that would be incorporated into the specification? (Dan Nourian, Raindrip/NDS, Inc.).

**A:** The current specification will allow fixed spray on turf grass only. Non-turf areas must use drip or micro-irrigation. With regard to WaterSense labeling, it is difficult for WaterSense to label products where performance depends on how it was installed.

**Comment:** The Water Budget Tool appears to be more generous to southwest Florida than the Florida Water Star<sup>SM</sup> tool. (Lois Sorensen, SWFWMD)

**Q:** Has the Water Budget Tool been ground-truthed in moderate climate locales? I ran a couple of quick examples for local usage in Maryland and it overestimated water demand for landscaping. (Steve Via, AWWA)

**A:** The Water Budget Tool is meant to be used as a prescriptive tool for estimating worst-case scenarios. WaterSense discourages the use of the tool as a predictive model.

**Comment:** I think the proposed changes to the new homes specification is a step in the right direction. It provides an opportunity for regionally based decision-making and it gives landscapers and builders the flexibility to address site-specific issues such as safety, security, and fire protection zones, heat island effects, and regional climate considerations.

Also, regarding the previous comment about WaterSense being open to concepts being developed by other entities, I think the opportunity for open participation is a positive step. It will provide additional opportunities to improve the knowledge base that goes into the Water Budget Tool. (Gerry Coons, Outdoor Product Equipment Institute [OPEI])

**Q:** I experimented with the Water Budget Tool and I think it is very user-friendly; however, I have a concern about the tool not showing formulas. This would mean that a water manager would be unable to see the precise formulas for calculating allowable water use. I think it would be helpful to see formulas embedded in the tool, as factors in the equation are important and can differ by region. For example, in California, the new maximum applied water allowance, per



the state code, limits the evapotranspiration adjustment factor (ETAF) to 0.7. Some cities and counties have an even lower ETAF. (Catherine Elvert, City of Palo Alto Utilities)

**A:** The WaterSense water budget approach document details all of the equations and describes the tool's calculations. It is available on the WaterSense website at [http://www.epa.gov/watersense/water\\_budget/](http://www.epa.gov/watersense/water_budget/).

**Q:** When using the online Water Budget Tool, it asks for the user to input their zip code. Do the formulas adjust for state codes, based on the input zip code, or is it something users must modify? (Catherine Elvert, City of Palo Alto Utilities)

**A:** The underlying algorithm to the water budget calculations is the same regardless of zip code. Climate information (e.g., rainfall, reference evapotranspiration, peak watering month) will vary based on the input zip code. Users must reference applicable state or local regulations or codes independently. Also, note that the model code you've described for California is a fundamentally different tool because it looks at annual data, whereas the WaterSense Water Budget Tool looks solely at the peak watering month (i.e., the month where the discrepancy between rainfall and reference evapotranspiration is at its greatest, historically).

**Comment:** We work with a lot of different builders and would love to see WaterSense keep the prescriptive option for landscape requirements. In my experience, builders will want to select the option that eliminates the need to perform in-depth calculations when they are not necessary. (Rachel Della Valle, Southern Energy Management)

*Areas of Requested Feedback: Maximum Water Pressure Requirement at or Below 60 psi*

**Comment:** Limiting water pressure to 60 psi could have a significant impact on fire sprinkler systems installed in large buildings. For example, a minimum pressure of 100 psi is required for standpipe systems. Large buildings will typically require greater pressures for sprinkler systems and other fire protection water systems. (Karl Wiegand, National Fire Sprinkler Association [NFSA])

**Q:** In large buildings, would sprinkler systems typically be installed separately from water delivery systems?

**A:** It would vary by jurisdiction. Buildings can have one or two main water supply lines. If one supply line is installed, then the domestic and sprinkler water lines will come into the building through the same line. This approach is typically preferred because any issues with the water system will be more promptly identified and addressed. It is also cheaper with respect to tap fees. However, two-line systems also may be installed, in which case the domestic and sprinkler water would be installed as two separate systems. (Karl Wiegand, NFSA)

**Comment:** The presentation indicated that building codes typically require pressures between 45 and 85 psi. This range should be viewed as a band of permissible pressures, where upper and lower bounds are specified. One approach to resolving potential water pressure conflicts in large buildings would be to distinguish between central plumbing and individual dwelling unit pressures. There should not be a problem with specifying a maximum pressure of 60 psi for individual dwelling units, even if building requirements call for greater pressures in their central plumbing. (Edward Osann, NRDC)

**Comment:** If there is a fire safety concern, it may be appropriate to add a provision to the specification permitting water pressures to exceed 60 psi when a fire marshal or building department deems 60 psi to be unachievable for health and safety reasons. Also, I think the previous comment is appropriate. Even if a main line supply pressure is 100 psi, a pressure regulating valve (PRV) could be installed to limit the pressure to 60 psi for individual dwelling units. (Doug Bennett, SNWA)

**Comment:** A maximum pressure of 60 psi, whether it is for indoor or outdoor use, can be somewhat limiting when irrigating or designing irrigation systems for overhead applications, especially if the pressure is measured at the utility connection and not downstream of the pressure-regulating device. Ultimately, an irrigation system should be designed with performance in mind, in which case pressures exceeding 60 psi may be necessary. (Steve Baker, Independent Irrigation Consultants, Inc. [IIC])

**Q:** From a utility perspective, specifying a pressure target in the home below 80 psi could be problematic. Also, there needs to be clarity about where the maximum pressure will be monitored, particularly for multi-family buildings. Is pressure measured at the point of connection or within the dwelling units? (Steve Via, AWWA)

**A:** The pressure requirement in the specification is a building requirement and is not applicable to utilities. The maximum pressure is monitored at the PRV. WaterSense has found that it is typically incumbent upon builders to install PRVs, even in places where water pressure is delivered below 60 psi. Most builders have provided feedback to WaterSense indicating that they typically install PRVs because it is difficult to guarantee what the supply pressure will be in the future.

**Comment:** I believe the maximum pressure is set to 60 psi in order to address water inefficiencies from leaks or flow rates that are not controlled by pressure-compensating aeration. I think we need to be clear about why the maximum pressure is set to 60 psi. Also, if domestic and sprinkler water lines come into a building through the same supply line, there may be another pathway to resolve the issue. It is conceivable that the line could be split so that sprinkler systems could be pressurized separately. (Gary Klein, Affiliated International Management, LLC)

**Comment:** Regarding the utility's perspective on water pressure, the 60-psi limit is intended to conserve water. It also prevents leaks because devices such as toilet fill valves will have longer useable life spans at more moderate water pressures. (Doug Bennett, SNWA)

**Comment:** I have posed the question of adequate pressure in the home to a number of utilities in a variety of locales (about half a dozen). The response was uniformly that 60 psi was an inadequate maximum pressure, even if the pressure was controlled by a PRV at the individual home, particularly in larger homes. There is a balance between water loss and adequate flow. At present, however, there is inadequate consideration of the need to assure adequate flow. The situation is even more complex in multi-family structures, multi-family complexes, and multi-home development construction. (Steve Via, AWWA)

*Areas of Requested Feedback: Water Heating Systems*

**Comment:** The presentation indicates that research and feedback have indicated that individual hot water heaters are far more common in new construction. However, in California, requirements for central versus separate water heaters vary by municipality. The new homes specification may need to provide a methodology to deal with differing municipal requirements.

Also, from an energy perspective, there is no reason to run always-on recirculation pumps, regardless of the application. Demand control works in all facets. I also really like the idea of 0.5 gallons of water between the source and the furthest fixture. I think it is achievable for almost any application. We can make water heating systems even more energy- and water-efficient, but this is a good place to begin. (Gary Klein, Affiliated International Management, LLC)

**Comment:** Yes, continue prohibition on always-on recirculation pumps. (Edward Osann, NRDC)

**Comment:** Regarding recirculation pumps, the cost of passive or active sensors for the farthest water closet is \$350 to \$500. This could be cost-prohibitive to builders. (Frank Kinder, Colorado Springs Utilities)

*Areas of Requested Feedback: Evaporative Coolers*

**Comment:** Large, high-rise buildings may use cooling towers, which are inherently an evaporative cooler. The new homes specification will need to either refine its definition of evaporative coolers or make accommodations for large-scale cooling towers for high-rise buildings, including performance requirements or best management practices (BMPs). (Doug Bennett, SNWA)

**Comment:** The use of swamp coolers may be limited, but the use of cooling towers for large buildings is going to be quite common. The specification should encourage efficient tower construction and operation. (Edward Osann, NRDC)

**Comment:** Cooling towers are prevalent in high-rise buildings in Florida. (Lois Sorensen, SWFWMD)

*Areas of Requested Feedback: Drinking Water Treatment Systems*

**Comment:** I am working on a small, six-unit multi-family building that may utilize a reverse osmosis treatment system. I think the specification needs to distinguish between the drinking water treatment systems used in large multi-family buildings (i.e., those with hundreds of units) and small multi-family buildings such as the one I am working on. Also, I think water treatment systems generally would be installed in small multi-family buildings. (Chris McTaggart, BER)

**Comment:** New LEED buildings are pursuing more aggressive reuse. This will lead to greater use of whole-building systems. (Steve Via, AWWA)

**Comment:** Your assumptions seem to be correct, at least in our area of Northern California. (Catherine Elvert, City of Palo Alto Utilities)

**Comment:** The specification needs to discourage the installation of water treatment systems when they are not needed (e.g., installation of a water softening system when water softening is not necessary). Unneeded water treatment wastes water and it should not be encouraged. (Steve Via, AWWA).

*Areas of Requested Feedback: Tracking Water Use on a Per-Unit Basis*

**Comment:** If the specification is expanded to include multi-family buildings, the submetering of individual units should be a requirement. These units should be submetered to support volumetric billing for occupants. (Edward Osann, NRDC)

**Comment:** I would like to echo the previous comment. I think that the submetering of individual dwelling units is absolutely necessary. It is about to become state law in Georgia in July 2012 and I would love to see such a requirement in the new homes specification. (Joy Hinkle, Southface Energy Institute)

**Comment:** EPA needs to determine who is going to use or act on water use tracking data (Steve Via, AWWA)

**Comment:** If smart meters are included in the new homes specification, WaterSense should be clear about why they are included (i.e., for the benefit of customers, so that they can engage in appropriate conservation activities and manage their water use). There is a backlash occurring against “big brother.” If smart meters will be in the specification, then the justification should be articulated clearly. (Steve Via, AWWA)

**Comment:** Metering is a key tool for specifications. The key point is to be clear about the intended goal for requiring metering in the specification. (Steve Via, AWWA)

*Areas of Requested Feedback: Tracking Water Use for Irrigation Systems*

**Comment:** I agree that irrigation metering and sub-unit metering both should be a requirement in the new homes specification. (Kathy Nguyen, Cobb County Water System)

**Q:** Multi-family buildings often include common area landscapes and associated irrigation systems. Would these common areas be associated with the labeling of individual units? (Steve Baker, IIC)

**A:** Even though WaterSense would be labeling individual dwelling units, those units would not be eligible for the label unless the common area landscapes met the WaterSense landscape design requirements. The landscape design requirements would serve as a prerequisite for the labeling of individual dwelling units.

**Comment:** We agree with the previous comment about making sure lines aren't blurred between the certification of common area landscapes and individual dwelling units. (Rachel Della Valle, Southern Energy Management)

**Comment:** We support the idea that irrigated areas above a certain size should have dedicated metering. If we do not measure how much water is used for irrigation, then it would be difficult to manage the landscape effectively and efficiently. Also, regarding the "big brother" comment about smart meters, I think this is a concern that is directed against utilities rather than against builders. I do not see the new homes specification requiring utilities to select specific meter types or technologies. (Edward Osann, NRDC)

**A:** We agree that there are several approaches for measuring per-unit water consumption. If multiple product technologies are available on the market, for which WaterSense does not have sufficient data to draw conclusions about their water efficiency, we then typically prefer to allow builders to choose their products and to let the market decide which technology is best.

**Comment:** Separate individual metering will become more important as water prices increase. (Steve Baker, IIC)

**Comment:** WaterSense must consider mixed-use properties (e.g., where ground floors are commercial and upper floors are residential) and how the new homes specification can be applied to a part of the building, if it can at all. (John Koeller, Alliance for Water Efficiency)

*Areas of Requested Feedback: Requiring Efficient Technologies for Pools*

**Comment:** Pool water use, regardless of efficient technologies, should be factored into the overall water use budget for the landscape. It is required in the California state model water-efficient landscape ordinance. (Catherine Elvert, City of Palo Alto Utilities)

**Comment:** The California state model water-efficient landscape includes the pool as a high-water use element of the landscape. In a multi-family development, the pool is always considered to be a part of the common-area landscape. Separate measurement is a required instrument in the management of water use in the landscape. In fact, it is a requirement in most or all of California. (Steve Baker, IIC)

**Q:** What was the rationale to include pools as an aspect of the landscape? (Gerry Coons, OPEI)

**A:** WaterSense knows that evaporative water losses from pools contribute to water use. This approach is something WaterSense was able to draw from other green building programs and standards in the field as a way to address this water use. The only other additional WaterSense requirement is for the use of pool covers to limit evaporative water losses when the pool is not in use. WaterSense needs to evaluate whether this approach is viable for multi-family settings, where the pool may be larger and more extensively used throughout the day.

**Q:** I think the consideration of pools as an aspect of overall landscape and relative water use is appropriate; however, I'm not sure I understand why it is treated as turf rather than as its own element. (Gerry Coons, OPEI)

**A:** WaterSense developed this approach based on similar programs. We feel this approach reasonably approximates pool water demands. If there are more appropriate methods for considering pools, WaterSense will most certainly take them under consideration.

**Comment:** It seems to make sense to consider pools with regard to specific technologies and to do so as part of the overall landscape. However, it should be considered independently of other landscape elements. (Gerry Coons, OPEI)

**Comment:** Even if the pool is considered to be part of the landscape, the new homes specification could still identify prescriptive measures, such as submetering the supply line. (Edward Osann, NRDC)

**Comment:** I suggest that all other outdoor water uses in multi-family buildings be considered separately from landscape. These uses may include outdoor showers, cabanas, outdoor kitchens, hose bibs, docks, car washes, etc. (Donna Fries, Miami-Dade Water and Sewer Department)

#### *Other Comments*

**Comment:** I hope that the revised specification will provide specific designations for WaterSense inspectors. Also, it would be something they could use to advertise their services for WaterSense. (Chris McTaggart, BER)