Inspection and Verification Guidance for WaterSense® Labeled New Homes

Version 1.2

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Inspection and Verification Guidance for WaterSense® Labeled New Homes

I. Background

WaterSense® is a national, voluntary labeling program sponsored by the U.S. Environmental Protection Agency (EPA) that promotes the design and construction of water-efficient new homes. Homes built to EPA's *WaterSense New Home Specification* are designed to be about 20 percent more water-efficient than similar new homes being built today. With WaterSense, homebuilders can differentiate their homes as meeting the only national water-efficient new home specification and home buyers can readily identify high quality, water-efficient new homes.

The *WaterSense New Home Specification* has three topic areas:

1. Indoor water use, including plumbing, plumbing fixtures and fittings, appliances, and other water-using equipment.
2. Outdoor water use, including landscape design (while irrigation systems are not required, irrigation systems that are installed must meet the criteria in the specification).
3. Resident and building management education.

A new home must be built by a WaterSense builder partner, certified by an EPA licensed certification provider, and meet *all* of the applicable criteria in the specification to become a WaterSense labeled new home.

The third-party certification of WaterSense labeled new homes is intended to verify that the home has met the criteria of EPA's specification. This document is designed to guide inspectors on what to look for and how to verify that the criteria have been met, and it should be referenced in conjunction with the specification. All definitions and applicable criteria in the specification apply to this document. A diagram of the *WaterSense New Home Certification System* is attached as Appendix A to this document.

II. General Site and Inspection Information

The inspector should begin each inspection by confirming the address of the house or building on the *WaterSense Labeled New Home Inspection Checklist* and taking a digital photo of the front of the home (or building) being inspected that includes the landscape. Fill in the inspection date and start time on the inspection checklist. At the end of the inspection, the inspector should fill in the time completed and sign the inspection checklist. The inspector should provide the builder with a copy of the inspection checklist and submit the completed, signed inspection checklist, required documentation, and digital photograph to his or her licensed certification provider.

Newly constructed homes eligible to earn the WaterSense label include:

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

- Residential units in multi-family buildings, including mixed-use buildings that have independent heating, cooling, and hot water systems separate from other units. Units in buildings that utilize central hot water systems powered by alternative energies such as geothermal for domestic hot water are allowed, if the alternative energy source provides at least 50 percent of the hot water needs for the residential units.

Every home submitted to the EPA licensed certification provider by the builder for certification must be inspected, unless the certification provider offers sampling. Licensed certification providers may offer a sampling protocol to builder partners who intend to certify multiple homes or units within the same multi-family building, subdivision or planned community. If the licensed certification provider offers sampling, the inspector must directly inspect and the licensed certification provider must certify the builder partner's first seven homes or units within the building, subdivision or planned community. After the first seven homes or units are inspected, the inspector should institute the following sampling process:

- Randomly select one home or unit for sampling from every seven homes or units that are scheduled for completion within 30 days of one another.
- Inspect the sample home or unit in accordance with the general procedures described in this document.
- For every home or building with an irrigation system installed, verify that the builder partner has had the irrigation system designed or installed, if applicable, and audited by an irrigation professional certified by a WaterSense labeled program regardless of whether the home is being directly inspected or certified as part of the sampling protocol.

The builder partner is expected to make the documentation listed in this guidance available to the inspector. This is typically done onsite during the inspection, but it can also be arranged for at any mutually agreeable time.

The builder partner is required to keep all the documentation that will be needed as part of the inspection process. The inspector is required to keep a copy of the inspection checklist, the digital photo, and any other supporting information that was obtained during the inspection.

If there are issues associated with compliance with the specification, the inspector should notify the builder partner and allow for the issue(s) to be corrected. The home can be re-inspected at the builder's expense. Any nonconformities should be noted on the inspection checklist along with the corrective actions that were taken.

The inspector should provide the completed checklist (or other similar method of documentation) and any supporting documents to the EPA licensed certification provider upon completion of the inspection. The certification provider will use the documentation to make the certification decision and issue the WaterSense new home label certificate to the builder.

III. Required Equipment

To conduct the inspection, inspectors will need the following pieces of equipment:

- Watch with second hand or stop watch
- Digital thermometer such as a digital food thermometer
- Pressure gauge

- Bucket or flow bag with volume measures marked
- Dye tablets for toilets
- Flashlight
- Digital camera
- Tape measure
- Equipment for determining slope such as clinometer or laser level

IV. Indoor Water Efficiency Criteria

Inspectors should conduct the inspection of the indoor water efficiency criteria in the following order. Fill out the *WaterSense Labeled New Home Inspection Checklist* (or other, similar method of documentation) and gather supporting documentation, as appropriate.

Each unit for which the builder is seeking the WaterSense label shall be individually inspected to verify that it meets the indoor water efficiency criteria, as described in Section II.

Leaks (Section 3.1)

Requirements

There shall be no detected leaks from any water-using fixtures, appliances, or equipment. Compliance shall be verified through pressure-loss testing and visual inspection.

Inspector Instructions

- Make sure that the water is turned on to the house or multi-family building and individual units, as appropriate. Attach a pressure gauge to the cold water faucet for the washing machine hookup or other cold water faucet and take a pressure reading. Turn the water to the home or unit off and wait approximately 10 minutes, then take another pressure gauge reading. A loss of pressure indicates a leak. Notify the builder if a leak is detected.
- For homes with a separate water supply for irrigation (e.g., reclaimed water), check both the outdoor and indoor water supplies for leaks. To check the outdoor water supply, attach a pressure gauge to the outside faucet and take a pressure reading. Wait approximately 10 minutes and take another pressure gauge reading.

  To check the indoor water supply, make sure that the water is turned on to the house. Attach a pressure gauge to the cold water faucet for a washing machine hookup and take a pressure reading. Turn the water to the house off. Wait approximately 10 minutes and take another pressure gauge reading. A loss of pressure in either water supply indicates a leak. Notify the builder if a leak is detected.
- During the inspection, check for leaks at all visible water supply connections and valves for water-u sing fixtures, appliances, and equipment. Notify the builder if leaks are detected. Some of the specific inspection requirements included below will provide additional instructions for checking for leaks.

Service Pressure (Section 3.2)

Requirements

The static service pressure shall be a maximum of 60 pounds per square inch (psi) (414 kilopascal [kPa]). Compliance for homes supplied by groundwater wells shall be achieved by

use of a pressure tank. Compliance for homes and units with publicly supplied water shall be achieved by one of the following methods:

- Use of a pressure-regulating valve (PRV) downstream of the point of connection. All fixture connections shall be downstream of the PRV; **or**
- Determination that the service pressure at the home is 60 psi or less at the time of inspection *and* documentation from the public water supplier that service pressure is unlikely to regularly exceed 60 psi at the home or unit on a daily or seasonal basis.

For units in multi-family buildings, the service pressure within each unit shall be at a maximum of 60 psi.

Piping for home fire sprinkler systems is excluded from this requirement and should comply with state and local codes and regulations.

Inspector Instructions

- Determine if the home or building receives publicly supplied water or receives water from a groundwater well.
- If the home's water is supplied by a groundwater well, verify that a pressure tank is installed and that the pressure is set to 60 psi or below.
- If the home's water is publicly supplied either:
  - Verify that a PRV is installed downstream of the point of connection; **or**
  - Verify that the water pressure to the home or unit is 60 psi or less (this could be done during the pressure-loss testing discussed in Section 3.1), *and* that there is written documentation from the water supplier that pressure is not expected to exceed 60 psi. Retain a copy of the documentation as part of the inspection records.
- Note that separate PRVs may have been installed for indoor and outdoor water usage.

Hot Water Delivery System (Section 3.3)

Requirements

The hot water delivery system shall store no more than 0.5 gallons (1.9 liters) of water in any piping/manifold between the hot water source and any hot water fixture. To account for the additional water that must be removed from the system before hot water can be delivered, no more than 0.6 gallons (2.3 liters) of water shall be collected from the hot water fixture before hot water is delivered. Recirculation systems must be demand-initiated. Systems that are activated based solely on a timer and/or temperature sensor do not meet this requirement.

Inspector Instructions

- Every unit in a multi-family building must comply with this criteria.
- Conduct testing of the hot water delivery system prior to testing the faucets and showerheads or any other indoor water draws to obtain the most accurate response time on the delivery of hot water. Testing must be conducted at the fixture that is located the farthest distance from the hot water source.

- Verify that the water heater is on. It is common for builders to turn off the gas and reduce the temperature setting to "vacation" on a gas water heater or to trip the breaker.
- Check to see that connection points in the hot water delivery system do not leak.
- Check the type of hot water delivery system installed to ensure it is not a timer- nor temperature-based recirculating system.
- For demand-initiated hot water recirculation systems, turn on the applicable switch or hit the control button for the hot water in the room where you are conducting the inspection and wait about 40 seconds.
- Place a bucket or a flow measuring bag (pre-marked for 0.6 gallons or 2.3 liters) underneath the hot water fixture.
- Turn the hot water completely on and place a digital thermometer in the stream of water. Record the starting temperature.
- Once the water meets the pre-marked line (approximately 24 seconds for a lavatory faucet), turn off the water and record the ending temperature.
- The temperature must increase by 10°F.

Toilets (Section 3.4.1)

Requirements

All toilets shall be WaterSense labeled tank-type toilets.

Inspector Instructions

- Obtain the make and model name and number of all toilets installed in the house from the builder partner. Retain a copy of the documentation as part of the inspection records.
- Verify that the toilets installed match the builder partner's list and are on EPA's list of WaterSense labeled tank-type toilets available at www.epa.gov/watersense/product_search.html.
- If the builder partner provides separate model numbers for the bowl and tank, verify that the bowl and tank combination is included on EPA's list.
- Check the angle valve and connections for visible leaks.
- Conduct a dye tablet test in each toilet to ensure the flapper is not leaking:
  - Drop dye tablets into the toilet tank and wait five minutes (while waiting you may want to test the faucets and/or showerheads).
  - Check the toilet bowl for tablet color. If color flows into the toilet, the flapper valve is leaking and needs to be replaced.
  - Flush upon completion to avoid staining from the dye.
- Check the water level setting:
  - Remove the tank lid.
  - Flush toilet.

- Ensure water level is properly set so that water does not overflow from the overflow tube.

Flushing Urinals (Section 3.4.2)

Requirements

All flushing urinals, if installed, shall be WaterSense labeled flushing urinals.

Inspector Instructions

- Obtain the make and model name and number of all urinals installed in the house from the builder partner. Retain a copy of the documentation as part of the inspection records.
- Verify that the urinals installed match the builder partner's list and are on EPA's list of WaterSense labeled flushing urinals available at www.epa.gov/watersense/product_search.html.
- Check connections for visible leaks.

Bathroom Sink Faucets (Section 3.5.1)

Requirements

All bathroom sink faucets shall be WaterSense labeled faucets or faucet accessories (e.g., aerators).

Inspector Instructions

- Obtain the make and model number of all bathroom faucets or faucet accessories installed in the house from the builder partner. Retain a copy of the documentation as part of the inspection records.
- Verify that all bathroom faucets or accessories are on EPA's list of WaterSense labeled bathroom sink faucets available at www.epa.gov/watersense/product_search.html. On EPA's list, the "Product Type" indicates whether the product is a faucet or an attachable accessory (i.e., aerator, laminar flow device, or spray device).
- Check the maximum flow rate from all faucets to ensure that the aerators have not been removed or tampered with:
  - Use a small bucket underneath or attach a flow-measuring bag to the faucet spout.
  - Turn on the water completely while starting a stopwatch. If the faucet has two handles, turn both handles on completely.
  - After 10 seconds on the stopwatch, turn off the water.
  - The volume of water collected should be approximately 0.25 gallons or 1.0 liter.
- Check the faucets for leaks after the water flow is turned off.
- Check the faucets' hot/cold water connection hoses and valves for leaks.

Kitchen Sink Faucets (Section 3.5.2)

Requirements

All kitchen sink faucets shall comply with federal standards for maximum flow rate of 2.2 gallons per minute (gpm) (8.3 liters per minute [lpm]).[1]

Inspector Instructions

- Check the maximum flow rate from all kitchen sink faucets:[2]
  - Use a small bucket underneath or attach a flow-measuring bag to the faucet spout.
  - Turn on the water completely while starting a stopwatch. If the faucet has two handles, turn both handles on completely.
  - After 10 seconds on the stopwatch, turn off the water.
  - The volume of water collected should be approximately 0.4 gallons or 1.5 liters.
- Check the faucet for leaks after the water flow is turned off.
- Check the faucet valves and/or connection hoses for leaks.

Showerheads and Shower Compartments (Sections 3.6.1 & 3.6.2)

Showerhead Requirements

All showerheads shall be WaterSense labeled showerheads. This includes fixed showerheads that direct water onto a user (excluding body sprays) for bathing purposes and hand-held showers. In cases where more than one showerhead or hand-held shower is provided in combination with others in a single device intended to be connected to a single shower outlet, the entire device must meet the maximum flow requirement in all possible operating modes.

Shower Compartment Requirements

The total allowable flow rate of water from all showerheads flowing at any given time, including rain systems, waterfalls, bodysprays, and jets, shall be limited to 2.0 gpm per shower compartment, where the floor area of the shower compartment is less than 2,160 square inches (in^2) (1.4 meters^2 [m^2]). For each increment of 2,160 in^2 (1.4 m^2) of floor area thereafter or part thereof, additional showerheads are allowed, provided the total flow rate of water from all flowing devices is equal to or less than the 2.0 gpm per shower compartment and the showerheads are operated by controls that are separate from the other showerheads in the compartment.

Inspector Instructions

- Obtain the make and model number of all showerheads installed in the house from the builder partner. Retain a copy of the documentation as part of the inspection records.
- Verify that the showerheads are on EPA's list of WaterSense labeled showerheads available at www.epa.gov/watersense/product_search.html.
- Check the showerhead for leaks at the shower arm and showerhead threaded connection. Also, if it is a bath/shower combination, check the shower diverter for minimum water seepage.

[1] Note: Faucets with maximum flow rates of *less than* 2.2 gpm are acceptable.
[2] Note: Kitchen sink faucets include bar faucets but not pot filling faucets.

- Check the maximum flow from the showerhead.
  - For a single showerhead in a shower compartment:
    - Use a bucket or attach a flow measuring bag to the showerhead.
    - Turn on the water completely while starting a stopwatch. If the shower has two handles, turn on both handles completely.
    - After 10 seconds on the stopwatch, turn off the water.
    - The volume of water collected should be approximately 0.35 gallons or 1.35 liters.
  - For multiple showerheads in a single shower compartment:
    - Use a bucket, attach a flow measuring bag, or use another method to capture all of the water flowing from each showerhead, either together or individually.
    - Turn on the water completely while starting a stopwatch. If the shower has two handles, turn on both handles completely.
    - After 10 seconds on the stopwatch, turn off the water.
    - Add the maximum flow rates from each showerhead to determine the total flow rate.
    - Measure the area of the shower compartment.
    - If 2,160 in^2 (1.4 m^2) or smaller, then the total allowable volume of water collected from all showerheads during the flow test should be approximately 0.35 gallons or 1.35 liters.
    - If between 2,161 in^2 (1.4 m^2) and 4,320 in^2 (2.8 m^2), then the total allowable volume of water collected from all showerheads during the flow test should be no more than 0.70 gallons or 2.7 liters.
- If a single device contains multiple showerheads, hand-held showers, etc., verify that the maximum flow requirement is not exceeded in any of the possible operating modes.
- If more than one showerhead is installed in a shower compartments larger than 2,161 in^2 (1.4 m^2), verify that the showerhead serving the additional area is operated by separate controls.

Note: The following indoor water efficiency criteria only apply if the builder has financed, installed, or sold as an upgrade the appliance or other equipment listed below.

Dishwashers (Section 3.7.1)

Requirements

If a dishwasher is financed, installed, or sold as an upgrade by the builder in the home, it shall be ENERGY STAR® qualified.

Inspector Instructions

- Verify that the installed dishwasher has an ENERGY STAR label. If no label is present, check the brand and model number against ENERGY STAR's list of qualified dishwashers available at www.energystar.gov/index.cfm?fuseaction=dishwash.display_products_html.
- Retain a copy of the documentation as part of the inspection records.

- Check for leaks at all visible connection valves.

Clothes Washers (Section 3.7.2)

Requirements

If a clothes washer, including those in common-use laundry rooms of multi-family buildings, is financed, installed, or sold as an upgrade by the builder, it shall be ENERGY STAR qualified with a water factor (WF) of less than or equal to 6.0 gallons of water per cycle per cubic foot capacity.

Inspector Instructions

- Verify that the clothes washer has an ENERGY STAR label and a WF of 6.0 gallons or less by checking for a listing of qualified residential clothes washers on ENERGY STAR's website at www.energystar.gov/index.cfm?fuseaction=clotheswash.display_products_html, and a listing of qualified commercial clothes washer at www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CCW.
- Retain a copy of the documentation as part of the inspection records.
- Check for leaks at all visible connection valves.

Evaporative Cooling Systems (Section 3.8.1)

Requirements

Individual evaporative cooling systems (i.e., swamp coolers) shall use a maximum of 3.5 gallons (13.3 liters) of water per ton-hour of cooling when adjusted to maximum water use. Blowdown shall be based on time of operation, not to exceed three times in a 24-hour period of operating (every eight hours). Blowdown shall be mediated by conductivity or basin water temperature-based controllers. Once-through or single-pass cooling systems, systems with continuous blowdown/bleedoff, and systems with timer-only mediated blowdown management shall not be used to meet these criteria.

Inspector Instructions

- Verify that the individual evaporative cooling system meets the maximum of 3.5 gallons of water per ton-hour and that the blowdown does not exceed three times in a 24-hour period by reviewing the manufacturer's product literature or visiting the manufacturer's website. Retain a copy of the documentation as part of the inspection records.
- Verify that the individual evaporative cooling system controls blowdown through conductivity or a basin temperature-based controller by reviewing the manufacturer's product literature or visiting the manufacturer's website. Retain a copy of the documentation as part of the inspection records.
- Check for leaks from all visible connections and valves.

Water Softeners (Section 3.8.2)

Requirements

All self-regenerating water softeners shall be certified to meet NSF/ANSI 44 Residential Cation Exchange Water Softeners, including the voluntary efficiency rating standards in Section 7–

Mandatory testing for elective claims for efficiency rated systems, which states that water softeners shall:

- Be a demand-initiated regeneration system (i.e., it must use a flow meter or water hardness sensor to initiate regeneration; devices that use time clock initiated regeneration [fixed time schedule] do not qualify for the efficiency rating).
- Have a rated salt efficiency of not less than 3,350 grains of total hardness exchange per pound of salt, based on sodium chloride (NaCl) equivalency (477 grams of total hardness exchange per kilogram of salt).
- Not generate more than 5 gallons of water per 1,000 grains of hardness removed during the service cycle (18.9 liters per 64.8 grams of total hardness removed).

Inspector Instructions

- Verify through the manufacturer's product specification sheet or product manual that the softener has been certified to meet NSF/ANSI 44 Residential Cation Exchange Water Softeners, including the voluntary efficiency rating standards in Section 7. Retain a copy of the documentation as part of the inspection records.
- Check for leaks from all visible connections and valves.

Drinking Water Treatment Systems (Section 3.8.3)

Requirements

Drinking water treatment systems must be certified to meet applicable NSF/ANSI standards, which are:

- NSF/ANSI 42 Drinking Water Treatment Units–Aesthetic Effects
- NSF/ANSI 53 Drinking Water Treatment Units–Health Effects
- NSF/ANSI 55 Ultraviolet Microbiological Water Treatment Systems
- NSF/ANSI 58 Reverse Osmosis Drinking Water Treatment Systems
- NSF/ANSI 62 Drinking Water Distillation Systems

Such systems shall yield at least 85 gallons of treated water for each 100 gallons of water processed.

Inspector Instructions

- Verify through manufacturer product literature that the drinking water treatment system meets the applicable NSF/ANSI Standard and yields at least 85 gallons of treated water for each 100 gallons of water processed. Retain a copy of the documentation as part of the inspection records.

Metering (Section 3.9)

Requirements

In multi-family buildings, each unit must be individually metered, submetered, or equipped with an alternative technology capable of tracking water use and making the information available to the residents of the individual unit.

Inspector Instructions

- Verify that the unit in the multi-family building has an individual water meter, submeter, or alternative technology for tracking water use.
- Verify that the water use information is accessible to the unit residents.

V. Outdoor Water Efficiency Criteria

Residential units in multi-family buildings will only be eligible for the WaterSense label if all common-use outdoor areas meet the outdoor water efficiency criteria.

Landscape (Section 4.1)

Requirements

All landscape criteria for single-family homes apply to the front yard. In addition, the criteria apply to all areas improved upon by the builder for single-family and multi-family buildings, including common-use areas of multi-family buildings intended or made available for the use of building residents. This includes areas with vegetation beyond temporary stabilization measures, irrigation systems, permeable hardscape or softscape features, pools, spas, and/or water features. Temporary landscapes (e.g., straw over bare soil) may be installed if permanent landscapes cannot be installed due to climate conditions. Homes or buildings with temporary landscapes can be inspected for compliance with indoor criteria and may be sold or occupied before a permanent landscape is installed. The WaterSense labeled designation may not be issued until the permanent landscape is installed, inspected, and certified to comply with the outdoor criteria.

Inspection

- Determine the portions of the landscape to which the criteria apply:
  - For single-family homes, this includes the front yard and all other areas improved upon by the builder.
  - For multi-family homes, this includes common-use areas intended or made available for residents use and all areas improved upon by the builder. This does not include private-use areas (e.g., areas deeded, identified as limited-use common elements, or otherwise restricted by building management).
  - Areas improved upon by the builder include:
    - Areas with vegetation beyond temporary stabilization measures
    - Irrigation systems
    - Permeable hardscape or softscape features
    - Pools, spas, or other water features

Landscape Design (Section 4.1.1)

Requirements

Design of the landscaped area shall be developed using the *WaterSense Water Budget Tool*. The tool can be found at www.epa.gov/watersense/water_budget. In single-family homes, pools, spas, and other water features shall be treated as turfgrass. For multi-family buildings, common-use pools/spas and all areas that are reserved for private use of a particular residence/unit are

excluded from the landscapable area. Lots with total landscapable area of equal to or less than 1,000 square feet are exempted from this criterion.

Landscapable area is defined as the designed area of landscape excluding the footprint of the home and permanent hardscape areas, such as driveways, sidewalks, and patios. Septic drainage fields and public right-of-ways should also be excluded from this calculation.

Inspector Instructions

- Obtain a copy of the Water Budget Tool Report from the builder partner and retain as documentation for the inspection records.
- Measure or obtain documentation to determine the total landscapable area.
  - For single-family homes, measure the surface area of any pools, spas, and water features installed and include those areas in the total landscapable area.
  - For multi-family homes, do not count in the landscapable area of any pools, spas, or other areas reserved for private use of the residents.
- On the Water Budget Tool Report:
  - Verify the landscaped area reported matches the measured or documented landscaped area (per the step above).
  - Verify the plant types/landscape features listed in the Summary of Hydrozones table are actually installed. For multi-family homes, make sure that common-use pools, spas, or other water features are not included in this list (they do not count towards the landscaped area).
  - Measure and verify the area for each plant type/landscape feature listed.
  - Verify the water demand (low, medium, high) for each plant type/landscape feature.
  - Verify the irrigation type (if applicable) is correct for each plant type.
  - Verify that the landscape meets the specification requirements such that the landscape water requirement is less than the landscape water allowance.

Slopes (Section 4.1.2)

Requirements

Slopes in excess of 4 feet of horizontal run per 1 foot vertical rise (4:1) shall be vegetated.

Inspector Instructions

- Use a laser level, clinometer, or other method to identify any slopes greater than 25% or 14^{o} (i.e., 4:1 slope).
- Verify that slopes greater than 25% have vegetated plantings (e.g., they are covered with groundcover, shrubs, or grasses).

Mulching (Section 4.1.3)

Requirements

All exposed soil shall include a 2- to 3-inch layer of mulching material. Mulching material is defined as a permeable arrangement of organic and/or inorganic materials that will retain soil

moisture, suppress weeds, and allow free movement of oxygen into and out of the soil. Artificial turf is considered mulching material under this specification.

Inspector Instructions

- Verify that all mulched areas are between 2 and 3 inches deep.
- Verify that there are no areas of exposed soil in the landscaped area.

Pools/Spas (Section 4.1.4)

Requirements

Pools and spas financed, installed, or sold as upgrades by the homebuilder in single-family homes shall have an appropriate cover.

Common-use pools/spas in multi-family buildings must have the following features:

- Be independently metered such that water use attributable to the pool and/or spa can be tracked and leaks can be readily identified.
- Be equipped with a gutter or grate system to catch water splashes or drag-outs.
- Be equipped with either sorptive media or cartridge filtration.

Inspector Instructions

- Verify that any pools and spas installed at single-family homes have a cover.
- Verify that pools and spas installed at multi-family buildings are:
  - Independently metered
  - Equipped with a gutter or grate system
  - Equipped with sorptive media or cartridge filtration.

Ornamental Water Features (Section 4.1.5)

Requirements

Ornamental water features financed, installed, or sold as upgrades by the homebuilder must recirculate water and serve a beneficial use.

Ornamental water features are defined as fountains, ponds, waterfalls, man-made streams, and other decorative water-related constructions.

Inspector Instructions

- Verify that ornamental water features recirculate water.
- Verify that the feature serves a beneficial use (e.g., habitat for wildlife, stormwater management, cooling properties).

Irrigation System Design and Installation (Section 4.2)

Requirements

Irrigation systems are not required. Irrigation systems that are financed, installed, or sold as upgrades through the homebuilder must meet the following criteria:

- All irrigation systems shall be designed or installed by a certified irrigation professional. Waivers from this requirement may be available if there are an insufficient number of available certified irrigation professionals.
- All irrigation systems shall be audited by a certified irrigation professional. Waivers from this requirement may be available if there are an insufficient number of available certified irrigation professionals.
- There shall be no detected leaks during the operation of the irrigation system.
- All irrigation systems shall be designed to sustain the landscape without creating runoff or direct overspray of the property during a minimum operating duration.
- All irrigation systems shall achieve a lower quarter distribution uniformity of 65 percent or greater.
- All irrigation systems shall be equipped with technology that inhibits or interrupts operation during periods of rainfall or sufficient moisture (e.g., rain sensors, soil moisture sensors).
- All irrigation systems shall be equipped with WaterSense labeled weather-based irrigation controllers or with soil moisture sensor-based controllers with specified features.
- Sprinkler irrigation shall not be used to water plantings other than maintained turfgrass and shall not be used on strips of turfgrass less than 4 feet wide nor on slopes greater than 4:1.
- Micro-irrigation systems shall be equipped with pressure regulators, filters, and flush end assemblies.
- Two water schedules, developed by the certified irrigation professional, shall be posted at the controller. One schedule shall be designed to address the initial grow-in phase of the landscape, and the second schedule shall be designed to address an established landscape. Both schedules shall vary according to the seasons.
- Irrigation systems installed in multi-family buildings shall be independently metered, submetered, or equipped with an alternative technology capable of tracking water used for outdoor irrigation.

Inspector Instructions

- Confirm that the irrigation system was designed or installed by a certified irrigation professional or that the builder obtained a waiver from the requirement.
  - If the system was designed or installed by a certified irrigation professional, verify that the professional is listed on WaterSense's Directory of Certified Professionals at www.epa.gov/watersense/findapro.
- Confirm that the irrigation system was audited by a certified irrigation professional or that the builder obtained a waiver from the requirement.
  - If the system was audited by a certified irrigation professional, verify that the professional is listed on WaterSense's Directory of Certified Professionals at www.epa.gov/watersense/findapro.

- Verify that the weather-based irrigation controller is on EPA's list of WaterSense labeled controllers available at www.epa.gov/watersense/product_search.html.
- For multi-family buildings, verify that the irrigation system is independently metered or submetered.
- Retain a copy of the *WaterSense Labeled New Home Irrigation Audit Checklist* completed by the certified irrigation professional as part of the inspection records. Verify that the auditor completed the checklist and verified that all of the components used in the irrigation system meet the minimum criteria contained in the specification.

VI. Homeowner and Building Management Education

Operating Manual for Single-Family Homes (Section 5.1)

Requirements

The builder shall develop and provide to the single-family homeowner a written operating and maintenance manual for all water-using equipment or controls installed in the house or yard, including all relevant WaterSense materials on indoor and outdoor water use. This may be a chapter or folder in an existing manual. If clothes washers or dishwashers are not provided, general information about water-efficient appliances shall be included.

If an irrigation system is installed, the builder shall provide the single-family homebuyer with a record drawing (e.g., schematic) of the system, an itemized list of irrigation components, copies of the irrigation schedules, and information about reprogramming the schedule after establishment of the landscape. This information should be included in the operating manual.

Inspector Instructions

- Verify that the operating manual includes operation and maintenance information on the following items:
  - PRVs, if applicable
  - Hot water delivery system(s)
  - Toilets
  - Faucets
  - Showerheads
  - If installed:
    - Dishwasher(s)
    - Clothes washer(s)
    - Evaporative cooling system
    - Water softener(s)
    - Drinking water treatment system(s)
  - General information on water-efficient dishwashers and clothes washers if they are not installed
- Verify that, if an irrigation system is installed, the operating manual includes:
  - Record drawing of the system

- Itemized list of irrigation system components
- Copies of the two schedules
- Information about adjusting the schedule

Occupant Operating Manual for Homes in a Multi-Family Building (Section 5.2)

Requirements

The builder shall develop and provide to the occupant of each labeled unit a written operating and maintenance manual for all water-using equipment or controls installed in the unit, including all relevant WaterSense materials on indoor water use. This may be a chapter or folder in an existing manual. If clothes washers or dishwashers are not provided but hookups are present, general information about water-efficient appliances shall be included. In addition, the manual shall include relevant information on water-saving features of the building outside the unit, including landscape, pools, and laundry facilities.

Inspector Instructions

- Verify that the operating manual includes operation and maintenance information on the following items:
  - PRVs, if applicable
  - Hot water delivery system(s)
  - Toilets
  - Faucets
  - Showerheads
  - If installed:
    - Dishwasher(s)
    - Clothes washer(s)
    - Evaporative cooling system
    - Water softener(s)
    - Drinking water treatment system(s)
  - General information on water-efficient dishwashers and clothes washers if they are not installed
  - Relevant information on water-savings features of the building outside the unit

Building Operating Manual (Section 5.3)

Requirements

For multi-family buildings, the builder shall develop and provide to the building management, an operating and maintenance manual for all water-using equipment and controls outside of individual dwellings or inside of individual dwellings that are maintained by building management.

If an irrigation system is installed, the builder shall provide building management with a record drawing (e.g., schematic) of the system, an itemized list of irrigation components, copies of the irrigation schedules, and information about reprogramming the schedule after establishment of the landscape.

If pools and/or spas are present, the builder shall include detailed information regarding filtration equipment and the manufacturer's recommended maintenance schedule, as well as information on monitoring pools/spas for leaks.

Inspector Instructions

- Verify that the operating manual includes operation and maintenance information on the following items, if maintained by building management:
  - PRVs, if applicable
  - Hot water delivery system(s)
  - Toilets
  - Faucets
  - Showerheads
  - Dishwasher(s)
  - Clothes washer(s)
  - Evaporative cooling system
  - Water softener(s)
  - Drinking water treatment system(s)
- Verify that, if an irrigation system is installed, the operating manual includes:
  - Record drawing of the system
  - Itemized list of irrigation system components
  - Copies of the two schedules
  - Information about adjusting the schedule
- Verify that, if pools/spas are installed, the operating manual includes:
  - Information about filtration equipment
  - Manufacturer's recommended maintenance schedule
  - Information about monitoring for leaks

Appendix A
Schematic of the WaterSense New Home Certification System