



Revised Draft Water-Efficient Single-Family New Home Specification

June 22, 2009



What Is WaterSense?

**A partnership program
sponsored by the U.S. EPA**

Promotes the value of water and helps Americans make smart decisions regarding water use and water-using products.

Aims to increase the adoption of water-efficient products and services by consumers and organizations.





Presentation Outline

- Review of revised draft specification criteria
 - Indoor
 - Outdoor
 - Homeowner education
- Review of certification & inspection process
- Questions
- Specification timeline
- Submittal of comments



Overview of Revised Specification

Homebuilders must meet specific water efficiency criteria in order to qualify their homes for the WaterSense label:

- **Indoor**
 - Service pressure
 - Plumbing fixtures
 - Hot water distribution
 - Appliances (if installed)
 - Other equipment (if installed)
- **Outdoor**
 - Landscape design
 - Irrigation (if installed)
- **Homeowner Education**
 - Homeowner's manual



Revised Specification Indoor Criteria - Leaks



- No visible leaks from any water-using fixtures, appliances, or equipment



Revised Specification Indoor Criteria - Service Pressure

- **Service Pressure:**
 - Use of a PRV/pressure tank downstream of the water meter to limit static service pressure to 60 psi
 - All fixture connections must be downstream of the pressure regulator



Revised Specification Indoor Criteria - Hot Water Delivery System

Reduce water wasted while drawing hot water:

- System shall store no more than 0.6 gallons of water in any piping/manifold between the hot water source and any hot water fixture
- Timer- and temperature-based recirculating systems shall not be used



Revised Specification Indoor Criteria - Plumbing Fixtures

WaterSense plumbing fixtures where applicable:

- **Toilets** – WaterSense labeled (1.3 gal/flush)
- **Bathroom Faucets** – WaterSense labeled (1.5/0.8 gpm)
- **Kitchen Faucets** – existing national standard (2.2 gpm @ 60 psi)
- **Showerheads** – total flow rate from all showerheads in one shower compartment (2600 in²) is limited to the existing national standard (2.5 gpm @ 80 psi); to be revised after the release of a WaterSense final specification





Revised Specification Indoor Criteria - Appliances

Appliances – ENERGY STAR[®] qualified

- If financed, installed, or sold as upgrades:
 - **Dishwasher** – Dishwashers shall be ENERGY STAR qualified
 - **Clothes washer** – Clothes washers shall be ENERGY STAR qualified with a water factor ≤ 6.0





Revised Specification Indoor Criteria - Optional Items

If financed, installed, or sold as upgrades

■ **Evaporative coolers**

- Max 3.5 gallons of water per ton-hour of cooling
- Blowdown ≤ 3 times/24 hours; mediated by conductivity or basin water temperature-based controllers
- Visible reservoir discharge outlet

■ **Water softeners**

- NSF/ANSI Standard 44 with voluntary efficiency rating standards (Section 7)

■ **Drinking water treatment systems**

- Meet applicable NSF/ANSI Standards; efficiency $\geq 85\%$

Revised Specification Outdoor Criteria - Landscape

- Minimum: front yard must meet specification
- Entire yard must be landscaped to the specification if:
 - Landscaping of entire yard is financed, installed, or sold as an upgrade
 - Irrigation systems, pools, spas, and/or water features are financed, installed or sold as an upgrade
- Lots with landscapable area ≤ 1000 ft² are exempt





Revised Specification Outdoor Criteria - Landscape Design

- Landscape design: 2 options
 - (1) Max turf: 40% of landscapable area
 - (2) Water budget design (based on 70% ETAF)

- Slope:
 - Plantings other than turfgrass shall be installed on slopes $> 4:1$

- Mulching:
 - 2-3 inches of mulch on non-vegetated, softscape areas



Water Budget Tool



Draft Water Efficient Single-Family New Home Specification: Water Budget Calculator

This water budget calculator can be used to determine if the designed landscape meets Criteria 4.1.1.2 of the specification. Please refer to the Water Budget Guidance Document for additional information.

Your Name:	John Doe
Builder Name:	Acme Homes
Lot Number/Street Address:	Lot #15, 100 WaterSense Drive, Denver CO

This worksheet can be used to determine if the designed landscape meets the water budget.

If the Landscape Water Requirement is LESS than the Landscape Water Allowance, then the water budget criterion is met.

If Landscape Water Requirement is GREATER than the Landscape Water Allowance, then the landscape and/or irrigation system needs to be redesigned to use less water.

If $LWR < LWA$, then the water budget is met.

Where:

LWA = Landscape Water Allowance for the site (gallons/yr)

LWR = Landscape Water Requirement for the site (gallons/yr)

If $LWR > LWA$, then budget is not met and adjustments need to be made.

STEP 3A - ENTER THE TOTAL AREA OF TURFGRASS IN THE DESIGNED LANDSCAPE FROM STEP 2B

Area of turfgrass in designed landscape (square feet)

STEP 3B - REVIEW THE LWA AND LWR FROM PART 1 AND PART 2

LWA (gallons/yr) LWR (gallons/yr)

OUTPUT - DOES THE DESIGNED LANDSCAPE MEET THE WATER BUDGET?

If YES, then the water budget criterion is met.

If NO, landscape and/or irrigation system adjustments need to be made and reflected in Step 2B - LWR.

The designed landscape is turf

Revised Specification Outdoor Criteria - Water Features

- Pools/Spas
 - Include cover
 - Deducted from turf allowance in Option 1 or included as landscapable area in Option 2

- Water Features
 - Recirculate water
 - Serve beneficial use
 - Deducted from turf allowance in Option 1 or included as landscapable area in Option 2





Revised Specification Outdoor Criteria - Optional Irrigation System

If financed, installed or sold as an upgrade

- Audited by a WaterSense irrigation partner
- No leaks
- Keep flow and spray from leaving lot
- Minimum DU_{LQ} of 70%
- Rainfall shut-off device
- List of controller capabilities (to be revised when EPA develops specification)
- Meet sprinkler head and microirrigation design and placement criteria
- Two seasonal schedules



Revised Specification – Homeowner Education

- **Operating Manual:**
 - Written homeowner’s O&M manual/chapter for all water-using equipment and controls, including record drawing (schematic) of irrigation system and copy of the schedules (if installed)
 - WaterSense materials on efficient water use
 - Include information about water-efficient appliances if clothes washers or dishwashers were not provided

- **WaterSense will provide template**



WaterSense New Homes Inspection & Certification System



Program Administrators

RESNET



Providers



Southern Energy Management



Inspectors

Joe Smith



Builders



Vanguard Homes





General Inspection Elements

- Check for leaks
- Verification of PRV/pressure tank
- Performance test – hot water delivery system
- Verification of WaterSense labeled fixtures
- Flow rate test – faucets and showerheads
- Verification of optional appliances
- Verification of turf %age, mulch, slope plantings
- Verify water feature req's
- Review of homeowner education manual



Irrigation Audit Elements

- Irrigation system audit
- Distribution uniformity (min. 70%)
- Verification of no runoff or overspray
- Appropriate system elements
 - Sprinkler heads on turf, microirrigation on beds & narrow areas
- Verification of controller features
- Verification that sprinkler head and microirrigation system requirements have been met
- Schedules posted at controller
- Schematics, information provided for homeowner



WaterSense Labeled New Home Certificate

- PDF
- Signed by inspector & provider



This home is certified to meet the U.S. Environmental Protection Agency's criteria for water-efficient new homes and has earned the WaterSense® label.

123 Anywhere Street, City, State Zip

This water-efficient home was built by

Bob the Builder

March 17, 2009

Joe Inspector
Inspections R Us
Home Inspector



Sally Provider
Inspections R Us
Certification Provider



Specification Considerations

- Verifiable water savings
- Cost-effectiveness
- Ease of adoption
- Ability of an independent party to inspect/verify
- Broad stakeholder buy-in
- Marketability
- Label credibility



Questions

- Indoor: Leaks & Service Pressure
- Indoor: Hot Water Delivery System
- Indoor: Fixtures, Appliances, & Other Equipment
- Outdoor: Landscape Requirements
- Outdoor: Design Options 1 & 2
- Water Budget Tool
- Outdoor: Other Design Elements
- Outdoor: Irrigation System Requirements
- Homeowner Education
- Inspection & Irrigation Audit Guidelines
- Other



Specification Timeline

- Public comment meetings June
- Finalize certification system June
- Program administrators apply July
- Deadline for 2nd draft comments July
- Certification providers apply Fall
- Training for certification providers Sept/Oct
- Finalize specification Nov
- Builders apply Nov



Revised Specification Public Comment Period

May 8, 2009 – July 7, 2009

- Submit official comments to:
watersense-newhomes@epa.gov
 - Topic
 - Comment
 - Rationale
 - Suggested change/language



For More Information

- **WaterSense Labeled New Homes:**

Web: http://www.epa.gov/watersense/pp/new_homes.htm

- **General Questions:**

Web: www.epa.gov/watersense

E-mail: watersense@epa.gov

Helpline: (866) WTR-SENS (987-7367)

- **EPA Contact:**

Allison Hogge

hogge.allison@epa.gov

(202) 564-0627

