

# This presentation premiered at WaterSmart Innovations

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*Green Building*  
Comparing ANSI Standards  
& Codes: an Update  
- Water Efficiency Provisions-

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watersmart'10™  
INNOVATIONS

*Las Vegas, October 2010*





# ANSI Standards

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- What is an ANSI standard?
  - American National Standards Institute
    - Private, not-for-profit organization
  - “...promoting and facilitating voluntary consensus standards and ensuring their integrity”
  - ANSI is not a standards developer
  - Standards are not the law until legislated or adopted into code or regulation
- Many standards are not ANSI standards



# “Green Building” ANSI Standards

- **Green Globes-Green Building Initiative (GBI):**
  - 1) “GBI Proposed American National Standard 01-200XP: *Green Building Assessment Protocol for Commercial Buildings*” (comm'l & residential above 3 stories)
- **American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE):**
  - 2) “Standard SS189.1, *Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings*” (comm'l & residential above 3 stories)
  - 3) “(Proposed) Standard 191 for the Efficient Use of Water in Building, Site, and Mechanical Systems”
    - Co-sponsors: ASHRAE - USGBC - ASPE - AWWA
- **International Code Council - NAHB**
  - 4) ICC 700-2008 “National Green Building Standard”
    - Co-sponsors: National Association of Home Builders - International Code Council
    - For homes & lodging: single & multi-family, hotels & motels, new constr & remodeling



# “Green Building” Guidelines

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- Numerous national green building GUIDELINES...
  - USGBC LEED Program: “LEED 2009”
  - U.S. EPA WaterSense<sup>SM</sup> for New Homes
  - CHPS - Collaborative for High Performance Schools
  - GGHC - Green Guide for Health Care<sup>TM</sup>
  - Built Green<sup>TM</sup>
  - Florida Water Star<sup>SM</sup>
  - Environments for Living<sup>®</sup> (Masco)
  - Build-it-Green<sup>TM</sup>

# NATIONAL GREEN BUILDING STANDARDS, CODES, & GUIDELINES

## with water use efficiency provisions

	Applications	Guidelines, code or standard?	Code-adoptable language?	Minimum thresholds or points?	Status
USGBC LEED-NC et.al.	All except SFR	Guidelines	No	Prerequisite + points	LEED 2009 mandates 20% reduction from baseline; 2012 version in development
USGBC LEED-Homes	Single Family Residential	Guidelines	No	Both	Active – to be updated
Green Globes – Green Bldg Initiative 01-200XP	Residential above 3 stories + all commercial	<b>ANSI Standard</b>	Yes	Points	Final standard ANSI-approved; published in April 2010
ASHRAE SS189.1 – High Performance Buildings	Residential above 3 stories + all commercial	<b>ANSI Standard</b>	Yes	Minimum thresholds	Final standard ANSI-approved; published in January 2010
ASHRAE S191 – Water Efficiency	All except SFR	<b>ANSI Standard</b>	Yes	Minimum thresholds	Process began July 1, 2008; 1 <sup>st</sup> public review draft to be issued 4 <sup>th</sup> quarter 2010
ICC 700 NAHB National Green Bldg Standard for Homes	Residential	<b>ANSI Standard</b>	Yes	Points	Final standard ANSI-approved; published in January 2009
IAPMO Green Plumbing & Mechanical Code Supplement	Residential above 3 stories + all commercial	<b>Code</b>	Yes	Minimum thresholds	Completed and published in February 2010
ICC Green Code	Non-residential	<b>Code</b>	Yes	Minimum thresholds	1 <sup>st</sup> draft through the public review process
WaterSense for New Homes	Residential	Guidelines	No	Minimum thresholds	Final issued December 2009

# NATIONAL GREEN BUILDING STANDARDS & CODES

## Comparison of specific water use efficiency provisions – maximum water use

Plumbing	Green Globes GBI 01-200XP	ASHRAE SS189.1	ASHRAE S191 (draft)	ICC-NAHB HOMES	IAPMO Green Plumbing & Mech Code Supplement	ICC Green Code (draft)
Residential toilets (per flush)	HET: 1.28g - 4.8L	HET: 1.28g - 4.8L	HET: 1.28g - 4.8L	HET: 1.28g - 4.8L	HET: 1.28g - 4.8L	HET: 1.28g - 4.8L
Commercial toilets (per flush)					1.6g - 6.0L	1.6g - 6.0L
Urinals (per flush)	HEU: 0.5g/1.9L	HEU: 0.5g/1.9L	HEU: 0.5g/1.9L	HEU: 0.5g/1.9L	HEU: 0.5g/1.9L	HEU: 0.5g/1.9L
Residential & commercial "private" lavatory faucets (per minute)	1.5gpm – 5.7Lpm	1.5gpm – 5.7Lpm	1.5gpm – 5.7Lpm	1.5gpm – 5.7Lpm	1.5gpm – 5.7Lpm	1.5gpm – 5.7Lpm
Commercial "public" lavatory faucets (per min.)	0.5gpm – 1.9 Lpm	0.5gpm – 1.9 Lpm	0.5gpm – 1.9 Lpm		0.5gpm – 1.9 Lpm	0.5gpm – 1.9 Lpm
Commercial metering faucets (per cycle)	0.25 gpc – 0.9 Lpc	0.25 gpc – 0.9 Lpc	0.20 gpc – 0.76 Lpc		0.25 gpc – 0.9 Lpc	0.25 gpc – 0.9 Lpc
Residential kitchen faucets (per minute)	2.2 gpm – 8.3 Lpm	2.2 gpm – 8.3 Lpm	2.2 gpm – 8.3 Lpm			2.2 gpm – 8.3 Lpm
Residential showerheads (per minute)	2.0 gpm – 7.6 Lpm	2.0 gpm – 7.6 Lpm	2.0 gpm – 7.6 Lpm	2.5 gpm – 9.5 Lpm	2.0 gpm – 7.6 Lpm	2.0 gpm – 7.6 Lpm
Residential showering compartment – size increment		2600 sq. in – 1.7 sq.m.	3000 sq. in – 1.9 sq.m.		1800 sq. in – 1.2 sq.m.	
Commercial pre-rinse spray valve (per minute)	1.6 gpm – 6.0 Lpm	1.3 gpm – 4.9 Lpm	1.3 gpm – 4.9 Lpm		1.6 gpm – 6.0 Lpm	1.3 gpm – 4.9 Lpm



# NATIONAL GREEN BUILDING STANDARDS & CODES

## Comparison of specific water use efficiency provisions – maximum water use

Appliances, Equipment & Alternate Water	Green Globes GBI 01-200XP	ASHRAE SS189.1	ASHRAE S191 (draft)	ICC 700-(NAHB) HOMES	IAPMO Green Plumbing & Mech Code Supplement	ICC Green Code (draft)
Residential dishwasher (total water per full cycle)	Energy Star & 5.8 gal – 22L	Energy Star & 5.8 gal – 22L	Energy Star & 5.0 gal – 19L	Energy Star	Energy Star	Energy Star
Residential clothes washer (water factor)	Energy Star & 6.0 gal – 23L	Energy Star & 6.0 gal – 23L	Energy Star & 4.5 gal – 17L	Energy Star	Energy Star	Energy Star
Graywater treatment system	Encouraged through the treatment and use of alternate (non-potable) sources of water			Points available for use of alternate sources	Specific provisions for equipment installation & water treatment	
Rainwater harvesting	Encouraged through the treatment and use of alternate (non-potable) sources of water				Specific provisions for equipment installation & water treatment	
Landscape irrigation	Provisions are non-mandatory; no turf restrictions	ET-based; smart technology; restrictions on turf	ET-based; smart technology; restrictions on turf	Non-mandatory provisions; some turf restrictions	Only as related to treatment & use of water from alternate sources; no specific landscape provisions	
Water features (fountains, etc.)	Use alternate water sources (non-potable); recirculation required				Use alternate water sources (non-potable)	
Residential water softeners	Demand-initiated regeneration control required				Permitted where water hardness $\geq 8$ grains/gallon (137 mg/L)	Demand-initiated regeneration required; max water use: 1 gal (19L) per 1 lb grains of hardness removed; salt efficiency requirements
Water-powered pumps					Water-powered sump pumps prohibited	Prohibited







# Key points...

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- ⑩ Many national standards...many national codes
  - ⑩ ALL are written in “code adoptable” language
  - ⑩ ALL are different!
  - ⑩ All or a part of each can be adopted into local ordinances
  
- ⑩ Proliferation of other “local” and “regional” guidelines and codes...
  - ⑩ Confuses the public and industry
  - ⑩ Leads to less-than-optimum requirements
  - ⑩ Wastes resources - time and money



# Plan of Action...

(for water-efficiency practitioners & advocates)

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- ⑩ There is more to “green” life than toilets and urinals!
- ⑩ Become familiar with the provisions of the standards and codes
- ⑩ Encourage your local authorities to incorporate or reference existing national standards/codes...
  - ⑩ ...either all or in part
  - ⑩ ...instead of developing their own codes and guidelines without recognizing work already done!



# Internet Resources

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- [www.allianceforwaterefficiency.org](http://www.allianceforwaterefficiency.org)
- [www.cuwcc.org/resource-center/resource-center.aspx](http://www.cuwcc.org/resource-center/resource-center.aspx)
- [www.cuwcc.org/maptesting.aspx](http://www.cuwcc.org/maptesting.aspx)
- [www.epa.gov/watersense/](http://www.epa.gov/watersense/) (WaterSense)
- [www.environmentsforliving.com/](http://www.environmentsforliving.com/)
- [www.floridawaterstar.com/](http://www.floridawaterstar.com/)
- [www.nahb.org/publication\\_details.aspx?publicationID=3887&sectionID=154](http://www.nahb.org/publication_details.aspx?publicationID=3887&sectionID=154) (NAHB)
- [www.epa.gov/owm/water-efficiency/docs/matrix508.pdf](http://www.epa.gov/owm/water-efficiency/docs/matrix508.pdf)
- [www.fishnick.com](http://www.fishnick.com) (FSTC-Food Service Technology Center)
- [www.usgbc.org/DisplayPage.aspx?CategoryID=19](http://www.usgbc.org/DisplayPage.aspx?CategoryID=19) (LEED)

# Thank you...

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