

# This presentation premiered at WaterSmart Innovations

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# Green Building Standards & Guidelines

## - Water Efficiency -

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watersmart'09<sup>TM</sup>  
INNOVATIONS

*Las Vegas, October 2009*





# “Green Building” ...

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- What is “green building”?

- U.S. EPA:

“Green building - also known as sustainable or high performance building - is the practice of:

- 1) Increasing the efficiency with which buildings and their sites use and harvest energy, water, and materials; and
- 2) Protecting and restoring human health and the environment, throughout the building life-cycle: siting, design, construction, operation, maintenance, renovation and deconstruction.”

- Wikipedia:

“A **sustainable building**, or **green building** is an outcome of a design philosophy that focuses on increasing the efficiency of resource use - energy, water, and materials - while reducing building impacts on human health and the environment during the building's lifecycle, through better siting, design, construction, operation, maintenance, and removal.”



# “Green Building” ANSI Standards

(American National Standards Institute)

- 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) “Proposed Standard 189.1P, *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
- National Association of Home Builders (NAHB):
  - 4) “National Green Building Standard”
    - Co-sponsors: ASHRAE - 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>

|   | <b>Applications</b>                          | <b>Guidelines or standard?</b> | <b>Code-adoptable language?</b> | <b>Minimum thresholds or points?</b> | <b>Status</b>   |
|---|--|--------------------------------|---------------------------------|--------------------------------------|---|
| USGBC LEED-NC et.al.                              | All except SFR                               | Guidelines                     | No                              | Points                               | LEED 2009 mandates 20% reduction from baseline                    |
| USGBC LEED-Homes                                  | Single Family Residential                    | Guidelines                     | No                              | Both                                 | Active  |
| Green Globes – Green Bldg Initiative 01-200XP     | Residential above 3 stories + all commercial | ANSI Standard                  | Yes                             | Points                               | Public comment period closed; final draft to be issued            |
| ASHRAE S189.1 – High Performance Buildings        | Residential above 3 stories + all commercial | ANSI Standard                  | Yes                             | Minimum thresholds                   | Public comment period closed; final draft to be issued            |
| ASHRAE S191 – Water Efficiency                    | All except SFR                               | ANSI Standard                  | Yes                             | Minimum thresholds                   | Process began July 1, 2008; provisions being drafted              |
| NAHB Green Bldg Standard for Homes                | Residential                                  | ANSI Standard                  | Yes                             | Points                               | Process complete; standard is ANSI approved                       |
| IAPMO Green Plumbing & Mechanical Code Supplement | Residential above 3 stories + all commercial | ANSI Standard                  | Yes                             | Minimum Thresholds                   | 1 <sup>st</sup> draft released for public comment on Aug 28, 2009 |
| WaterSense for New Homes                          | Residential                                  | Guidelines                     | No                              | Minimum thresholds                   | Final to be issued by year end                                    |



# “Green Building” ...

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- ASHRAE Standard 189.1 for High-Performance Buildings Developed in conjunction with USGBC
  - More aggressive & comprehensive than LEED in water efficiency
  - Proposed as an ANSI National Standard
  - Numerous public review drafts - hundreds of comments
  - Covers “high performance” buildings, incl 4-story residential & higher
    - HETs required; includes all plumbing & appliances
    - Focuses on water reuse
    - Focuses on landscape & landscape irrigation
  - Does not cover single family homes or low-rise MF (1 to 3 stories)
  - Competes directly with Green Building Initiative (GBI)



# “Green Building” ...

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- ⑩ Green Globes - Green Bldg Initiative (GBI) Std 01-200XP  
“Green Building Assessment Protocol for Commercial Buildings”
  - More aggressive & comprehensive than LEED in water efficiency
  - Proposed as an ANSI National Standard
  - Numerous public review drafts - hundreds of comments
  - Points-based (NO prescriptive thresholds)
  - Covers commercial and residential
    - HETs encouraged; includes all plumbing & appliances
    - Focuses on water reuse
    - Focuses on landscape & landscape irrigation
  - Does not cover single family homes or low-rise MF (1 to 3 stories)
  - Competes directly with ASHRAE S189.1





# “Green Building” ...

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- IAPMO Green Plumbing & Mechanical Code Supplement
  - Designed as a GREEN SUPPLEMENT to existing codes
    - Sections may be adopted in whole or in part by jurisdictions
    - Can supplement any code: UPC, IPC, UMC, other local codes
  - Covers all areas of indoor water use efficiency
    - Plumbing systems and fixtures
    - Appliances and equipment
    - Alternate sources of water (gray, reclaimed, recycled, rain, condensate, other)
  - Does not cover single family homes or low-rise MF (1 to 3 stories)
  - 1st draft for public review just released (Aug 09)
  - In the distant future, will compete with a similar document from ICC



# “Green Building” ...

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## ⑩ National Assoc of Home Builders:

### National Green Building Standard

- ANSI nat'l standard for new & remodeled homes, hotels, motels (3 stories & less)
- Point-based
- Water efficiency a small part (6% to 9%)
- WaterSense HETs required; other water-using equipment & designs included: urinals, faucets, showers, appliances, structured plumbing, landscape & landscape irrigation, graywater reuse, leak detection-automatic shut-off
- To provide a basis for home builders to build “green”



# “Green Building” ...

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## ⑩ WaterSense<sup>SM</sup> for New Homes

- Guidelines for water-efficient new homes (3 stories & less)
- Revised draft specification released May 2009
- Inspection guidelines a part of the program
- Water efficiency is 100% of the program - minimum thresholds
- WaterSense HETs required; other water-using equipment & designs included: appliances, water treatment systems, structured plumbing, landscape & landscape irrigation
- To provide a common basis or template for governments adopting “green building” programs for new homes



# “Green Building” ...

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## ⑩ USGBC LEED Program (guidelines)

- Covers nearly all types of buildings except SF residential
- LEED 2009 added an important water prerequisite...
  - Mandatory 20% reduction in water use from a calculated baseline
  - Cumulative across all EAct plumbing products
  - Baseline is EAct 92 for all plumbing, EXCEPT lavatory faucets:
    - EAct 92 - 2.2 gpm (8.3 Lpm) maximum
    - Superseded by model plumbing codes - 0.5 gpm (1.9 Lpm) = baseline
  - Earn 1 point for achieving 30%, another 1 point for 40% reduction
- LEED 2012 is in development



# 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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