This presentation premiered at WaterSmart Innovations

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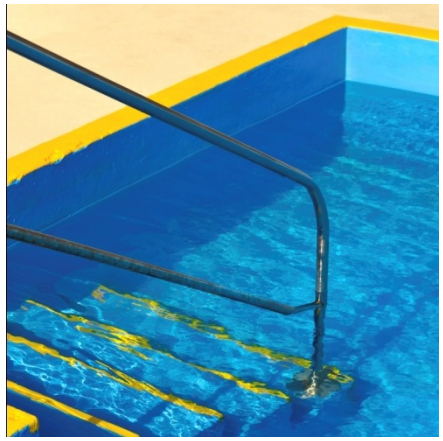
Swimming Pools & Spas - Balancing Recreation and Conservation



WaterSmart Innovations 2011
October 5, 2011
11-W-1109
1:35pm - 2:00pm

ICC INTERNATIONAL CODE COUNCIL®

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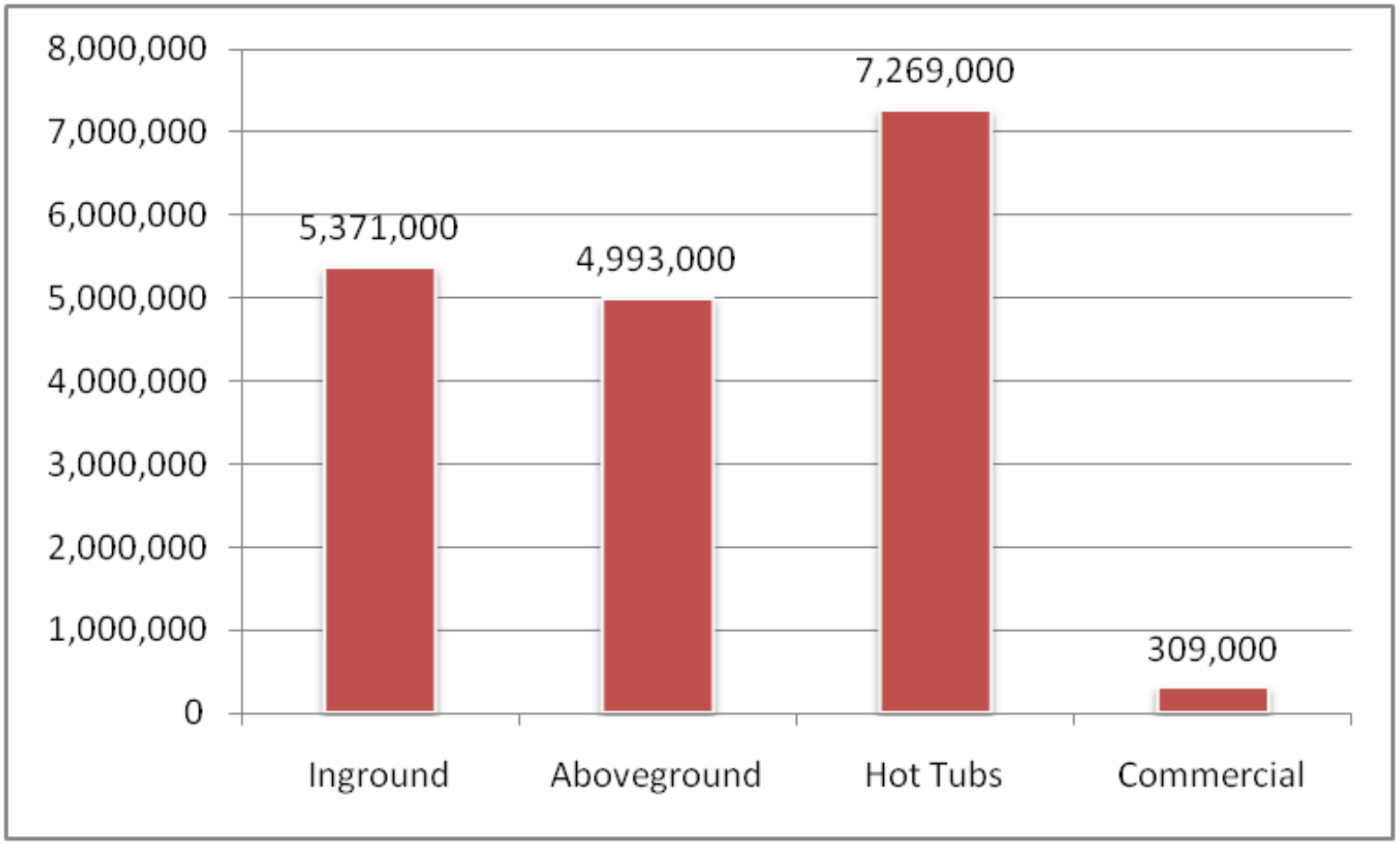
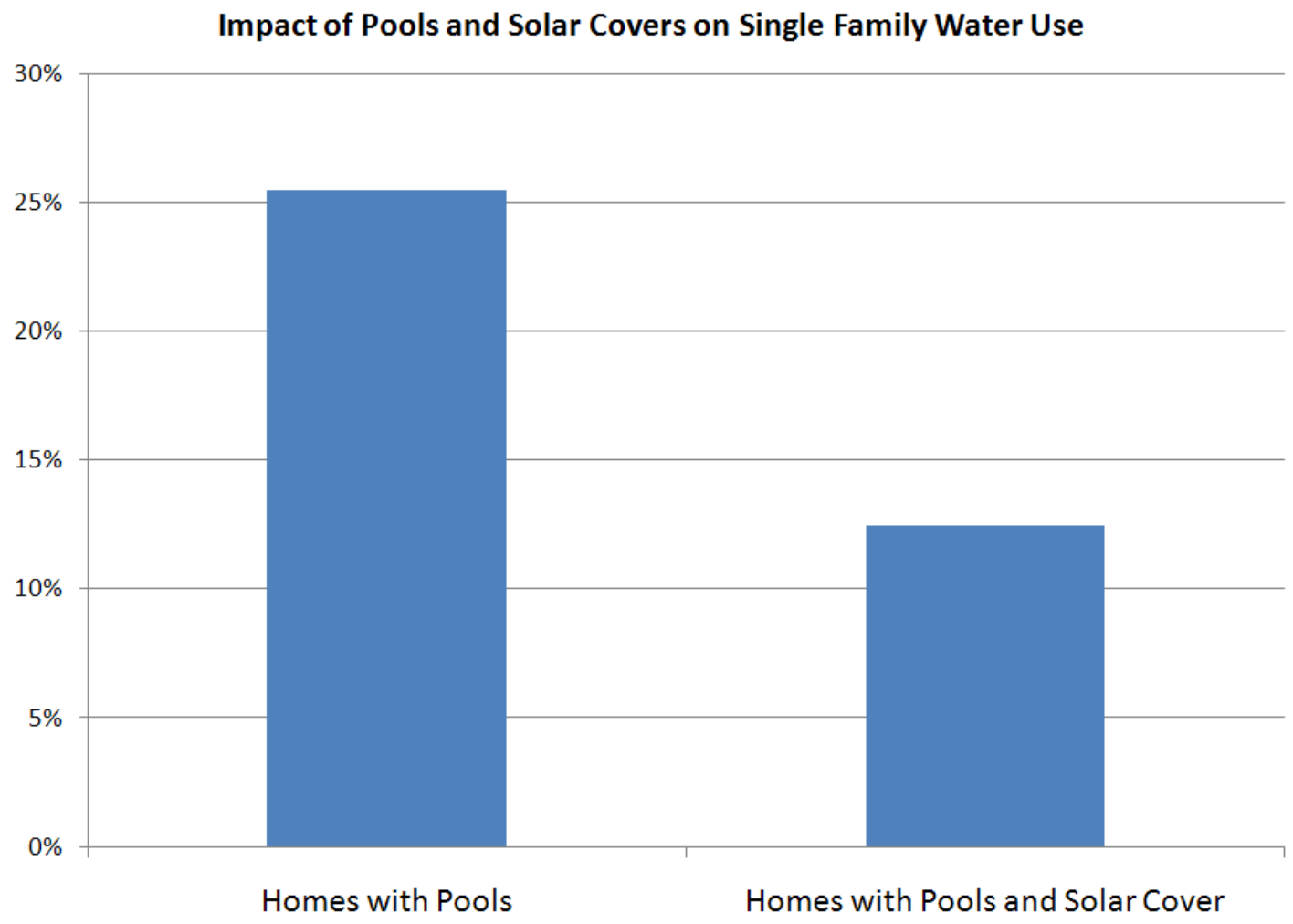
APSP The Association of Pool & Spa Professionals™

Background

2011 Installed Base – Swimming Pools and Hot Tubs



Tampa Bay Water Authority Survey



Where does Pool Water Come From?

- Domestic supplies
- Bulk water suppliers
  - Fire hydrant meters
  - Water utility
- Rainwater
- Condensate

Water Loss Mechanisms

Evaporation

- Variables: Sunlight intensity, air and water temperature, wind, humidity, shading, pH and chemical content of pool water
- “The average pool can lose up to one inch of water per week through evaporation.” Maryland Department of the Environment
- “In sunny areas, such as California, a pool can even lose its entire volume of water within a year” California Spa and Pool Industry Education Council
- 400 sq. ft. pool will lose approximately 19,665 gallons of water per year to evaporation. City of Scottsdale, AZ:

Leak Detection and Mitigation

- “It is estimated that up to 30% of pools have leaks, so it’s prudent to do periodic leak checks.” (Scottsdale, AZ)
- ”An inch-a-day leak in a 15-by-30-foot (4.6-by-9.1 m) pool can waste approximately 102,000 gallons per year (386 m3)!” (AWE)

Backwash

- Filters used for pool and spa recirculation systems require cleaning. Cleaning methods vary by type
  - Sand
  - Diatomaceous Earth (DE)
  - Filter Cartridge (can be manually cleaned)
- Backwashing: Reverse, high velocity flow of water from the pool or spa through a filter, with discharge and disposal of the particulate-laden water until the filter is cleaned.
  - Duration and frequency is a function of the water quality and loading.
  - Disposal may be on the surface or in sanitary sewers.

Splashing

- Bulk water loss through splashing is very situation dependent.
  - Water parks and more active water attractions can experience some of the highest losses.
  - Very difficult to quantify and control.
- Potential solutions are imperfect
  - Lower water levels
  - Returning splash troughs

Water Conservation Strategies

Design & Construction for Conservation

- **Windbreaks.** Cutting wind exposure can reduce loss of both heat and water. Use privacy panels, landscaping, or fencing.
- **Covers.** Vapor retardant covers can reduce both evaporation and heat loss significantly.
- **Submetering.** Install submeters on pool supply lines with “time out” controls that can be pre-set .
- **Reuse**. Connect pool backwash drains to onsite non-potable water reuse systems.

Design & Construction for Conservation

- **Water Features and Waterfalls.** Design to allow all to be turned off when not in use.

- **Overflows**. Design to allow as much collection of rainwater as possible before draining excess.
- **Autofill Devices.** Helpful, with installation of failsafe measures to eliminate the chance of malfunction and waste.

- **Filters**. Consider using removable cartridge filters that do not require backwashing.
- **Alternate Sources**. Connect condensate drains and rainwater harvesting systems to pools.

Operation for Conservation

- **Completely Changeout Water Rarely.** For pool, one filling can last decades.
  - Residential spa water needs to be replaced only two to three times a year.
  - Controlling chemistry is key.
- **Control Temperature Carefully.** Do not heat your pool above 78° when not in use. Use cover to preserve heat.
- **Turn Off Water Features When Not in Use.**
  - Minimize misting of water as it promotes evaporation.
- **Inspect Autofill Devices.**

Operation for Conservation

- **Minimize or Eliminate Backwash.** Maintain water quality to minimize the frequency required for backwash.
  - Manually clean cartridge filters.
  - Backwash sand or DE filters as infrequently as possible (without compromising water quality or mfrs. instructions).
- **Reuse Backwash.** Use backwash discharge in an onsite water reuse system or surface discharge onto landscaping (if permitted locally) .
- **Recycle Pool Vacuum Water.** Utilize a pool vacuum that recycles water when cleaning the pool.
- **Monitor Submeters.**

Conclusion & Summary

Pool Efficiency in the IgCC PV2

- **702.17 Covers.** Spas shall be provided with vapor-retardant covers. Installed covers shall be in continuous contact with the rim surface of the spa.

- **Table 705.2.1:** Indoor and outdoor pools and spas shall be required to utilize a *meter* on makeup water supply lines.

- **708.12.1 Graywater sources.** Water from other *approved nonpotable* sources including… swimming pool backwash operations… shall also be permitted to be collected for reuse by *graywater systems, as approved by the code official and as* appropriate for the intended application.

- ~~**702.18 Splash troughs.** Swimming pool splash troughs shall discharge to the pool water system.~~

- ~~**702.19 Covers.** Swimming pools shall be provided with vapor-retardant~~

IgCC
SAFE & SUSTAINABLE BY THE BOOK

ICC/APSP International Swimming Pool and Spa Code

- Integration with the family of ICC codes
- Integration with the family of APSP standards
- Single, comprehensive document
- Full compliance with VGB for suctio entrapment safety
- More system components
  - Lighting
  - Waterparks
  - Exercise spas

Coming in Spring 2012!

Thanks for your kind attention!

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KNOWLEDGE EXCHANGE

INTERNATIONAL CODE COUNCIL

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Meet us at the Knowledge Exchange, Located at Booth #102 in the WSI Expo.

Date: Wednesday, October 5

Time: 2:30-3:00 PM