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Green Plumbing and Mechanical Code Supplement

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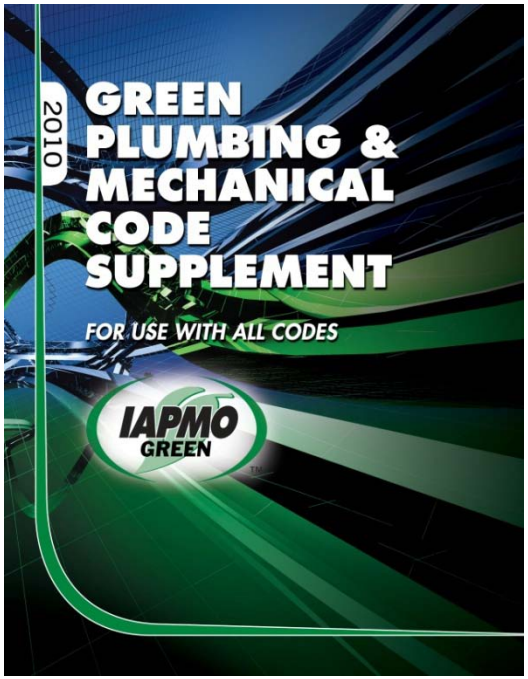


IAPMO Green

- Uniform Codes - developed with critical eye on sustainability
- 2007- IAPMO Board calls for a reduction in energy and water consumption in the Uniform Plumbing and Mechanical Codes.
  - IAPMO Board creates the Green Technical Committee (GTC) to accomplish goals

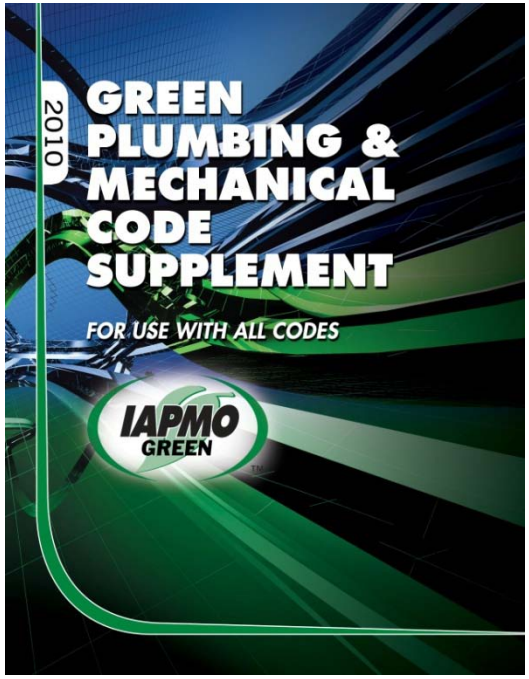
Green Technical Committee (GTC)

- Comprised of a diverse, 25 member group of experts in Green plumbing and mechanical fields
- 8 task groups including:
  - Plumbing Fixtures and Fittings
  - HVACR
  - Hot Water Systems
  - Water Pipe Sizing

GTC Objectives

- Develop Green Plumbing and Mechanical Code Supplement
- Identify opportunities to make Uniform Codes more sustainable.

What is the Green Plumbing and Mechanical Code Supplement?



What is the Green Supplement?

- Published in February
- First green code
- Turnkey document
  - Residential and commercial sustainable plumbing and mechanical systems
  - Covers all aspects of sustainability

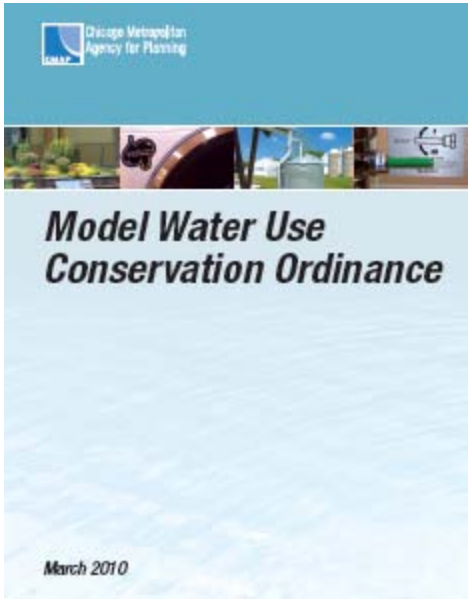
What is the Green Supplement?

- Bridge between codes and green building
- Baseline for sustainability
  - Coordinated with Green Building Programs
- Repository for future code provisions
- Overlays ANY adopted plumbing or mechanical code
- Written in code language
  - maintain IAPMO's high standards for protecting public health, safety and welfare.
  - Blend of performance provisions and specifications

Broad Support

GPMCS Having Immediate Impact

- Serves as the basis of:
  - Los Angeles water conservation ordinance
  - Georgia Senate water conservation law
  - Chicago Metropolitan Agency for Planning Model Water Conservation Ordinance



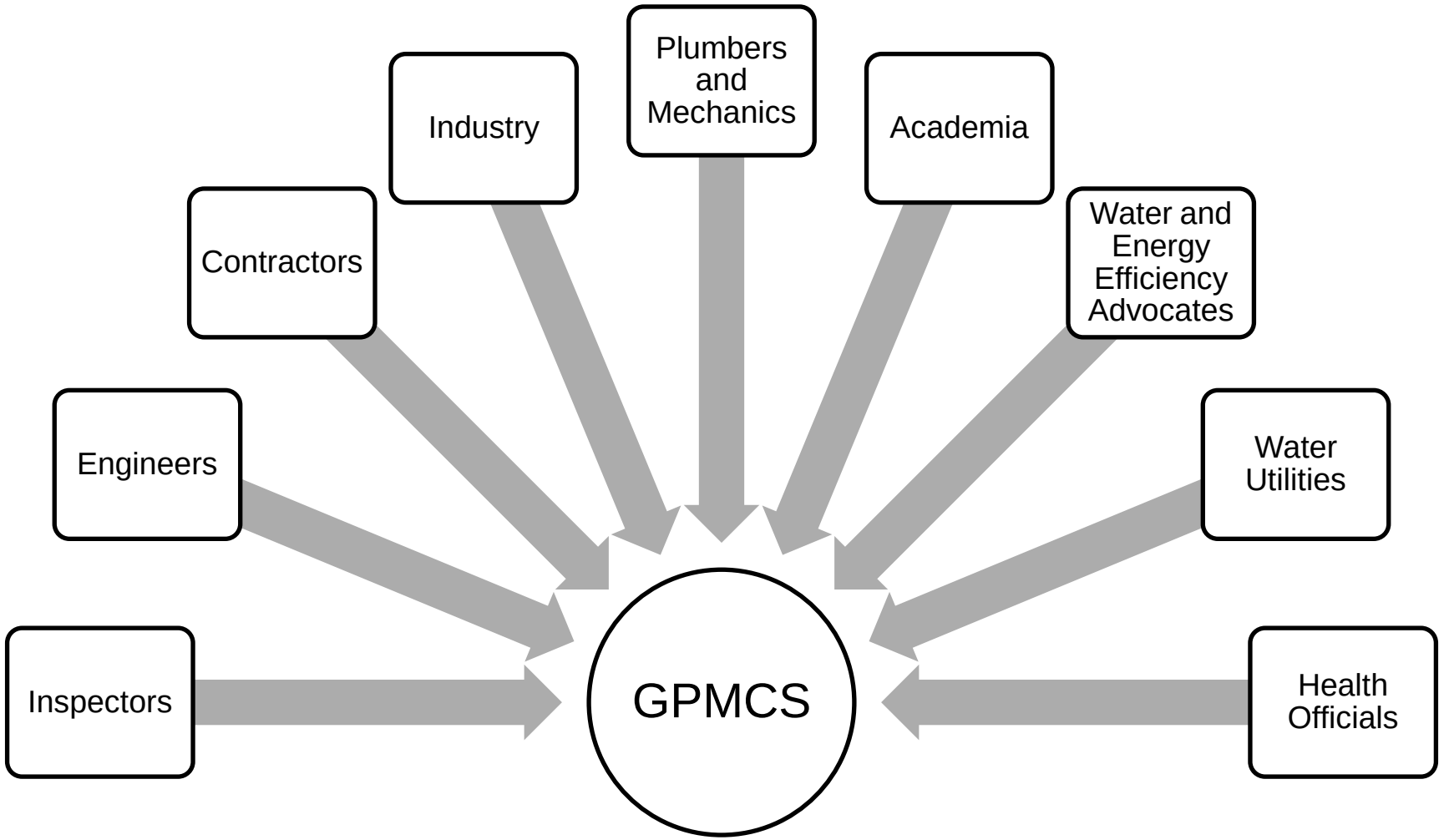
GPMCS Having Immediate Impact (cont)

- Serves as the basis of:
  - City of Houston Plumbing Code
  - State of Illinois
  - State of South Dakota

Why the Need?

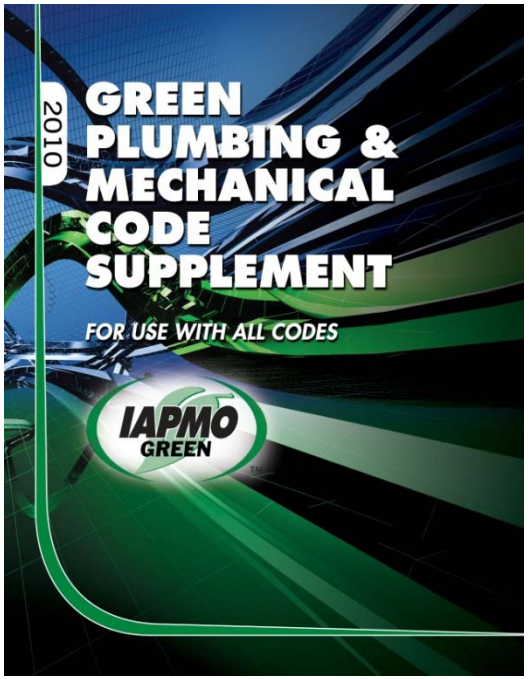
- Bridge gap between codes and emerging technologies
- Nothing focusing solely on plumbing and mechanical systems.
- Nothing covering all aspects of sustainable construction for RESIDENTIAL and COMMERCIAL SYSTEMS.
- Engage plumbing and mechanical stakeholders

Need to Engage Stakeholders



What it Covers?

- Water and energy efficiency
- Alternate water source use
- Indoor environmental quality
- Installer qualifications



Water Efficiency and Conservation

- 20% + more efficient than UPC
- Coverage areas include:
  - High efficiency plumbing fittings, fixtures and appliances.
    - References EPA WaterSense Specifications
  - Required submeters
  - Water treatment equipment

High Efficiency Plumbing Fixtures and Fittings

Fixture/Fitting	Maximum Consumption
Water Closet	1.28 gpf
Water Closet –Flushometer Valve	1.6 gpf
Urinal	0.5 gpf
Lavatory Faucet (residential and private)	1.5 gpm
Lavatory Faucet	0.5 gpm or 0.25 gpm per metering cycle
Showerhead	2.0 gpm
Shower compartment	2.0 gpm per 1,800 in^2
Prerinse Spray Valve	1.6 gpm
Tub Spout Diverter Leakage	0.1 gpm

High Efficiency Plumbing Fixtures and Fittings

- Issues under consideration
  - Clarifying maximum flow rates for sink faucets
    - Definition of nonresidential lavatory faucet
      - Includes sink faucets in restrooms for hand washing after fixture use
      - Excludes supplemental sink faucets within or near restrooms
  - Reducing flow rate for Prerinse spray valves to 1.3 gpm.
  - Dipper well faucet water consumption

Pipe Sizing for Lower Flows

- Current sizing based on Hunter's curves
  - Statistical approach to estimating simultaneous use of water of fixtures and appliances
  - Has not kept pace with water use reductions in recent years
  - Biggest hurdle is gathering data on actual simultaneous flows
  - Risk of undersizing

Maximum Water Pressure

- 60 psi maximum
  - Less water loss due to leakage
  - Less consumption
  - Less wear and tear on mechanical components
- GTC considering proposal to limit pressure of irrigation systems
  - Input needed from irrigation industry

Water Softeners

- Rough-in for homes with hard water
- Required treatment for hard water supplied to heating equipment
- GTC studying a request to lower hard water threshold
  - Industry study indicates hard water reduces water heating efficiency
  - Increased salt in waste stream an issue
  - Technology emerging that uses less or no salt and water

Alternate Water Sources

- Comprehensive provisions addressing
  - Rainwater harvesting (nonpotable and potable)
  - Reclaimed (recycled) water
  - Gray water
  - On-site treated nonpotable water systems.

Alternate Water Sources

- Top issues being addresses
  - Minimum water quality standards
    - NSF 350
    - IAPMO IGC 207
    - IAPMO ANSI standard
  - Cooling condensate discharging to alternate systems
  - Use in fire sprinkler systems

Water Heating System Design, Equipment and Installation

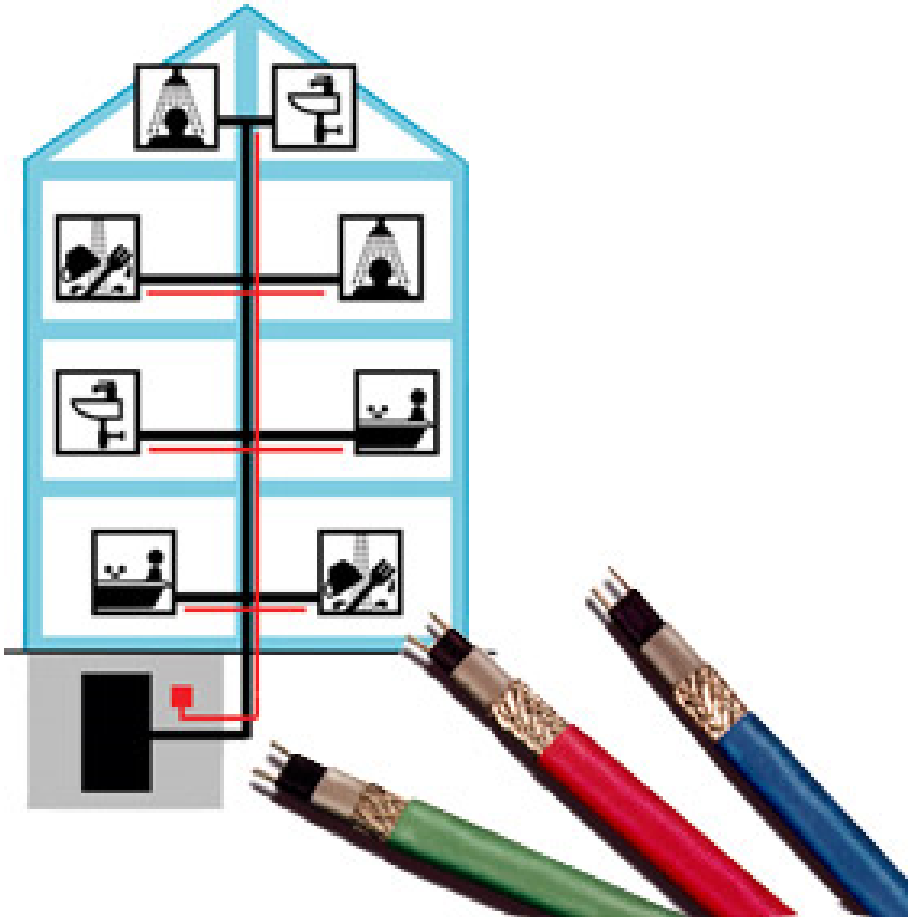
- Comprehensive provisions addressing water heating system efficiency.
  - Equipment efficiency
  - Required insulation,
  - System controls
  - Recirculation,
  - Maximum volume of hot water

Water Heating System Design, Equipment and Installation

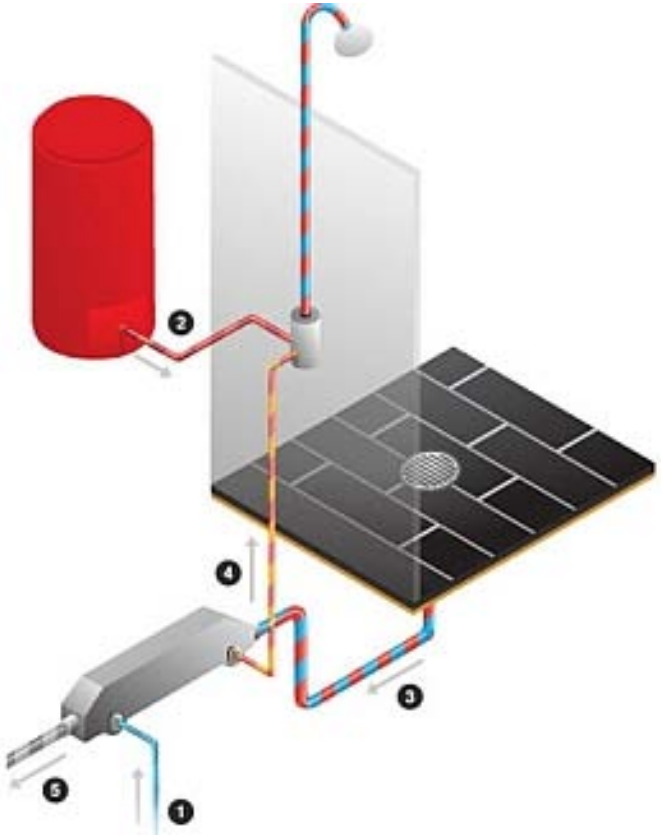
- Required maximum volume of hot water
  - 32 ounce (1/4 gal) max between heat source and shower valve, kitchen sink or lavatory faucet
  - 16 ounce (1/8) gal max in run out of recirculation loop
- On-demand recirculation in residential occupancies.

Photovoltaic Heat Trace

- Proposal submitted to add as hot water maintenance option
- Technology available
- Cost effective in certain applications



Waste Water Heat Recovery



- Under investigation
- Several technologies available
- Recover heat from waste water from bathtubs, showers, sinks and appliances
- Preheat cold water intended for hot water applications

Supplement Maintenance

- Continuous maintenance
  - Nimble process to address emerging technologies
  - Changes can be submitted at any time by anyone
  - Submittal form posted on IAPMO website
  - Update scheduled by 2012

IAPMO Green Updates

Visit web page at:

www.iapmogreen.org

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Questions?