

Codes, Standards and Incentive Programs

Recognizing Improved Hot Water Systems

International Code Council (ICC)

- 2012 IECC Residential and IRC
 - R-3 pipe insulation with a table to determine allowable lengths not requiring insulation. NAHB did not support
- 2015 IECC Residential and IRC
 - R-3 pipe insulation on all piping $\frac{3}{4}$ inch and larger. No table. NAHB support
 - Efficient circulation and heat trace controls
 - Demand controls for circulation when cold water pipe is the return
 - Drain water heat recovery to follow standards
 - HERS can be used as part of compliance path

International Code Council (ICC)

- 2012 IECC Commercial and IPC
 - 1 inch wall thickness on all circulation loops and heat traced pipe
- 2015 IECC Commercial and IPC
 - Follow rules in the HVAC table
 - Efficient circulation and heat trace controls
 - Demand controls for circulation when cold water pipe is the return
 - Drain water heat recovery to follow standards. Trade offs in the performance path
 - 0.5 gallons (64 ounces) or 50 feet from nearest source of heated water to plumbing fixtures and appliances
 - 2 ounces when connecting to public lavatory faucets

International Association of Plumbing and Mechanical Officials (IAPMO)

- 2012 UPC-nothing
- 2012 Green Plumbing and Mechanical Code Supplement (GPMCS)
 - Reduced volume from the source of hot water to the use
 - Pipe Insulation: Wall thickness shall be at least equal to the nominal pipe diameter up to 2 inch pipe. 2 inch wall thickness thereafter.
 - More water efficient plumbing fixtures and appliances
- 2015 UPC is likely to require that all hot water piping be insulated
 - Pipe insulation (See above)

National Green Building Standard (NGBS)

- 2012 version gives credit for water use efficiency including hot water distribution
- 2015 version is working to ensure that the energy and water chapters are in sync

LEED

- Currently only included in LEED-H V.4

RESNET-HERS

- Accounting for water use efficiency measures separately from the energy it takes to heat the water
 - Hot water distribution (type and length)
 - Operational efficiency (at start of shower, during use at a sink)
 - Fixture water use efficiency
 - Appliance water use efficiency
 - Pipe Insulation
 - Drain water heat recovery
- Accounting for energy before heating efficiency
 - Circulation loop control strategies
 - Pipe insulation
 - Drain water heat recovery

California Utility Allowance Calculator

- Initial purpose was to improve the method of estimating utility bills for affordable multi-family housing
- Build-it-Green plans to adopt the method for its Green Point Rated program, both single and multi-family
- Method is similar to that being developed for RESNET-HERS

DOE Challenge Home

- Meet EPA WaterSense requirements
 - Maximum of 0.5 gallons in the piping from the nearest source of hot water to the plumbing fixture or appliance
 - Maximum of 0.6 gallons to come out by the time the water temperature is 10F above ambient starting temperature