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Plumbing and Mechanical Professionals: Leaders in Sustainable Design.

By Jay Peters

Water conservation and renewable energy solutions are, without question, the most important resource-saving needs for our planet. Notwithstanding the debate over whether global warming is manmade or a cyclical weather pattern, the fact is there's a limited supply of freshwater and non-renewable fuel on Earth.

While the entire construction industry should be proud of its efforts to continually improve upon sustainable building solutions, plumbing and mechanical professionals are leading the charge towards ever-greater water and energy efficiency.

Saving millions of gallons

Technologies supporting extensive water capture, reuse and conservation measures are being implemented more and more. Rainwater collectors, graywater, and even water "made" by buildings (i.e., from cooling coils and steam condensate) are treated via engineered graywater systems and reused for various non-potable needs.

An example of just one highly effective water conservation provision referenced in the ICC's International Green Construction Code, is for rainwater catchment systems. Developed with extensive assistance by the American Rainwater Catchment System Association (ARCSA), the provision details these systems' design, which can save million gallons of potable water each year, depending upon the size of the building. In coordination with the National Fire Sprinkler Association, ARCSA also helped develop provisions that offer a rainwater catchment option in fire suppression sprinkler system design.

Improved hot water delivery systems design, including pipe sizing, layout and insulation reduce energy costs without sacrificing efficiency. More efficient fixtures, fittings and appliances, including faucets, toilets, and otherwise are also being developed. Water treatment devices and equipment like water softeners and reverse osmosis units provide freshwater in areas where supplies are an issue.

Landscape and agricultural irrigation are tremendous users of water. Green codes provide provisions for landscape irrigation, storm water management, recreational water use, even recycling for car washes.

Renewable energy systems, such as wind turbines, biogas, solar thermal and photovoltaic panels, and alternative energy technologies like geothermal heating, energy recovery and management

control systems are relying less and less on fuel, thereby reducing our dependency on foreign oil and other non-renewable fuel sources.

The IGCC provides provisions for these technologies and outlines greenhouse gas emission, energy use and reductions, atmospheric impacts, and many other air quality controls and guidelines.

Less is more

Conservation basically means less waste, which means using fewer materials in manufacturing, building stronger, and repurposing what would have been construction debris.

Manufacturers are testing and developing products that use fewer materials without sacrificing quality and performance, as well as using renewable materials. Evaluation services, such as the ICC-ES SAVE (Sustainable Attributes Verification and Evaluation) program, are devoted exclusively to sustainable product evaluations.

The recently published Public Version 1.0 of the IGCC is an outstanding green code reference for all construction professionals. Of course, since many green applications are water and energy based, there are extensive provisions for Plumbing, Mechanical and Fuel Gas professionals.

Developed by the ICC and the cooperating sponsorship of the American Institute of Architects and ASTM International, the IGCC also offers ANSI/ASHRAE/USGBC/IEC Standard 189.1 as a jurisdictional compliance option. This combination results in a green construction code with flexible and comprehensive sustainable building provisions.

The water- and energy-efficiency applications in the IGCC perfectly complement those referenced in the International Plumbing Code and International Mechanical Code, as well as the International Building Code, International Residential Code and International Energy Conservation Code.

Sustainable design is here to stay

Sustainable design and the codes that support it are not a passing phase, but a trend that will continue to evolve and mature. Green applications will naturally integrate into standard construction practices.

There has never been a better time to be a plumbing or mechanical professional. We have always been devoted to our trade and to developing innovative solutions for every application in our field and now we are finally being recognized for the important role we have always played.

Jay Peters is a Reeves Journal editorial advisory board member and executive director for the International Code Council's Plumbing, Mechanical and Fuel Gas Group. The ICC publishes building safety, energy efficiency and fire prevention codes. Most U.S. cities, counties and states choose the I-Codes based on their outstanding quality, with one or more PMG codes adopted in 49 states. The more than 200 superior PMG products and related services were developed specifically by and for plumbing and mechanical professionals. Contact the PMG Group at 1-888-ICC-SAFE, x4PMG or PMGResourceCenter@iccsafe.org.