

# The History of Plumbing...so far!

The creation of modern plumbing with its delivery of clean water and removal of waste is credited with being one of the single most important inventions ever. Toilets, and the delivery of clean water into homes, are widely acknowledged to have saved more lives than anything else in the world, including modern medicine and vaccines.

	<p>Roman aqueducts carry 1.2 billion liters of water a day a distance of 57 miles to bring fresh water to Rome.</p>	<p>1700 BC</p>	<p>Plumbers construct an elaborate system of sewage disposal and drainage, the first of its kind, and create the first flush toilet in Crete.</p>
<p>Boston builds the USA's first city waterworks system to be used by fire brigades. Most of the pipes at this time were built from hollowed out trees.</p>	<p>312 BC</p>	<p>Queen Elizabeth I installs the first flushing toilet in England. The toilet was invented by her godson Sir John Harrington... hence the nickname, "the John."</p>	
	<p>Philadelphia becomes the first city to switch entirely to cast iron pipes to create an intricate new system of water delivery, making the city a global leader in plumbing.</p>	<p>1596</p>	<p>Alexander Cummings receives the first patent for a flushing toilet.</p>
	<p>Cholera outbreak occurs due to a contaminated well in England.</p>	<p>1652</p>	<p>Boston's Tremont Hotel offers indoor plumbing; the first hotel to do so.</p>
<p>Chicago becomes the first large American city to build a comprehensive sewer system.</p>	<p>1804</p>	<p>England passes the Public Health Act of 1848, which includes notes on water safety and is later adapted for countries around the globe.</p>	
<p>The New York Metropolitan Board of Health forms in response to a growing demand for government study into the cause of serious health outbreaks and rapid spread of disease. The board's studies will confirm the link between contaminated water and the spread of disease, leading to a call for better sanitation.</p>	<p>1854</p>	<p>Louis Pasteur, the "father of microbiology" and the inventor of the vaccine, uncovers the link between bacteria and disease.</p>	
	<p>Private homes begin to see the first installation of water heaters; understanding of proper temperatures and safety guidelines will follow much later.</p>	<p>1855</p>	<p>Chicago amazes the world with the installation of the first city water tower.</p>
<p>Today's National Association of Plumbing, Heating, Cooling Contractors (PHCC), then known as the National Association of Master Plumbers, holds its first official meeting.</p>	<p>1868</p>	<p>High tank water closets enter the market, using a whopping 10 gallons of water per flush!</p>	
<p>US trade associations and governmental bodies start to form to develop sanitary plumbing system codes, ordinances, and laws for regional use.</p>	<p>1870</p>	<p>American Water Works Association is founded.</p>	
<p>Tank type water closets emerge onto the market using 5 to 7 gallons of water per flush, reducing previous water consumption by 30-50%.</p>	<p>1883</p>	<p>The world's first drinking water treatment systems are built in Massachusetts to reduce turbidity and microbial contamination.</p>	
<p>The International Association of Plumbing and Mechanical Officials (IAPMO) is founded. They begin writing a model code to protect the health of people from inept plumbing practices.</p>	<p>1880s</p>	<p>William E. Sloan invents the flushometer valve that uses pressure from the water supply system to discharge water for waste removal from toilets and urinals.</p>	
<p>The Sanitary Brass Institute and the Tubular Plumbing Goods Institute combine to form the Plumbing Brass Institute (PBI).</p>	<p>1920s</p>	<p>A tragic outbreak of dysentery, leading to nearly 100 deaths during the World's Fair in Chicago, is traced to a faulty plumbing system that leaked contaminated water.</p>	
<p>NSF/ANSI-14 is adopted as a standard regulating plastic piping components.</p>	<p>1926</p>	<p>Alfred M. Moen invents the single-handle mixing faucet.</p>	
<p>American Society of Sanitary Engineering (ASSE) issues standard ASSE 1016 for compensating shower valves to help increase safety.</p>	<p>1933</p>	<p>Paul C. Symmons invents the first compensating shower valve to guard against thermal shock.</p>	
	<p>PBI changes its name to Plumbing Manufacturers Institute (PMI).</p>	<p>1937</p>	<p>Plumbing Brass Institute's (PBI) first president, Arthur H. Goepel, appoints the first plumbing standards committee for fixture fittings. PBI, later renamed Plumbing Manufacturers Institute, is today's Plumbing Manufacturers International.</p>
<p>California issues a new law requiring toilets to use no more than 3.5 gpf.</p>	<p>1939</p>	<p>PBI gets approval for the standard on fixture fittings known as ANSI A112.18.1, helping to regulate industry standards.</p>	
<p>The Lead Contamination Control Act becomes federal law.</p>	<p>1954</p>	<p>The Safe Drinking Water Act becomes federal law.</p>	
<p>The American Society of Mechanical Engineers issues new standards conformance to ASSE 1016 for compensating shower valves to create harmony in the industry and in North America.</p>	<p>1965</p>	<p>The first 3.5 gallons of water per flush (gpf) toilet is introduced; previous versions used between 5.0 to 10.0 gpf or more!</p>	
<p>Congress passes the Environmental Policy Act of 1992 (EPA Act '92) to conserve water. The law mandates maximum water consumption for toilets at 1.6 gpf, urinals at 1.0 gpf, faucets at 2.5 gallons per minute (gpm) and 2.5 gpm for showerheads. President George H. W. Bush signs it into law.</p>	<p>1973</p>	<p>The Clean Water Act expands on the Federal Water Pollution Control Act of 1948.</p>	
<p>The International Code Council (ICC) is established by Building Officials and Code Administrator International, International Conference of Building Officials, and Southern Building Code Congress International to develop a single set of comprehensive and coordinated model construction codes without regional limitations.</p>	<p>1975</p>	<p>The National Sanitation Foundation (NSF) forms NSF 61 joint committee with the American National Standards Institute (ANSI) to test all fixtures that come in contact with potable water.</p>	
<p>The United Nations (UN) declares 2005-2015 the International Decade for Action, "Water for Life", with a focused list of goals to raise awareness and support of better sanitation and world issues relating to water and plumbing.</p>	<p>1978</p>	<p>The NSF/ANSI 61 standard is officially published.</p>	
	<p>EPA launches the voluntary WaterSense program providing performance standards for water conserving fixtures and establishing high-efficiency plumbing products; PMI becomes a WaterSense Partner.</p>	<p>1984</p>	<p>The U.S. Environmental Protection Agency (EPA) promulgates the Lead and Copper Rule. The first domestic set of lead-free plumbing products are introduced.</p>
<p>EPA WaterSense issues high-efficiency specifications for tank-type toilets and lavatory faucets</p>	<p>1988</p>	<p>Building Officials and Code Administrators (BOCA) Plumbing Code requires shower compensating valves.</p>	
<p>PMI supports California efforts to encourage and provide for the gradual conversion to WaterSense plumbing fixtures for toilets and urinals through the passage of a new law, AB 715, which mandates that all toilets and urinals sold in the state must be WaterSense-certified by 2014.</p>	<p>1989</p>	<p>EPA Act '92 officially goes into effect.</p>	
<p>PMI advocates passage of the Vermont Act 193 on lead and NSF/ANSI 61 adds Annex G, which further regulates the allowable lead content in potable water fittings.</p>	<p>1991</p>	<p>EPA Act '92 is revised to lower faucet flow rates to 2.2 gpm from 2.5 gpm.</p>	
<p>PMI works with the Alliance for Water Efficiency, IAPMO, ICC and PHCC to form the Plumbing Efficiency Research Coalition (PERC) dedicated to developing research projects to support the development of water efficiency and sustainable plumbing products, systems and practices.</p>	<p>1992</p>	<p>California enacts AB 1953, which mandates lead content in plumbing fixtures be less than 0.25%.</p>	
<p>PMI changes its name to Plumbing Manufacturers International to reflect its expanded scope.</p>	<p>1994</p>	<p>The World Health Organization publishes a guide, <i>Health Aspects of Plumbing</i>, noting that "sustainable health, especially for children, is not possible without access to safe drinking water and basic sanitation facilities."</p>	
<p>PMI recognizes the important role certifiers, suppliers, and other industry groups play in the plumbing manufacturing industry by creating its Allied Member category of membership.</p>	<p>1994</p>	<p>NSF/ANSI 61 adds Annex F, further reducing the allowable level of lead release in potable water fixtures.</p>	
<p>PMI works with Louisiana state legislature to ensure lead-free legislation (HB 471) that conforms to provisions in the California law in the spirit of harmonization. Louisiana governor signs HB 471 into law to be effective January 1, 2013.</p>	<p>1999</p>	<p>PMI launches www.SafePlumbing.org to provide safe, reliable information about plumbing products.</p>	
<p>PMI joins other industry organizations in forming the Get The Lead Out of Plumbing legislation to be enacted in 2014.</p>	<p>2005</p>	<p>California enacts PMI-sponsored SB 1334 to add third-party certification to water-conserving plumbing fittings, and SB 1395 requiring state testing and evaluation.</p>	
<p>PMI joins ASPE and IAPMO in founding the Plumbing Industry Leadership Coalition (PILC). Eleven other organizations sign on.</p>	<p>2006</p>	<p>EPA WaterSense issues an official specification for urinals.</p>	
<p>PMI works with state legislators on California AB 715 and Texas HB 2667 on water efficiency go into effect.</p>	<p>2006</p>	<p>The federal law "Reduction of Lead in Drinking Water Act" reducing lead content in plumbing fixtures from 8.0% to maximum 0.25% weighted average goes into effect.</p>	
<p>PMI becomes co-convener of the International Emerging Technology Symposium, later called the Emerging Water Technology Symposium in 2017</p>	<p>2007</p>	<p>In consultation with PMI, Colorado adopts high-efficiency plumbing standards (SB 14-103), the "Phase in High Efficiency Water Fixtures Options," which requires the use of WaterSense fixtures for all tank-type toilets, urinals, faucets and showerheads, to be effective Sept. 1, 2016.</p>	
<p>President Obama signs the "Water Resources Reform Development Act" to address water infrastructure issues.</p>	<p>2007</p>	<p>PMI's involvement was the catalyst for the California Energy Commission's final modifications to their appliance efficiency regulations for residential lavatory faucets and showerheads that included provisions for sell-through of existing products.</p>	
<p>In response to drought conditions in California, the California Energy Commission mandates the nation's most stringent water-efficiency standards for plumbing products.</p>	<p>2007</p>	<p>EPA WaterSense gains federal budget authorization through the signing of America's Water Infrastructure Act by President Donald Trump.</p>	
<p>PMI commissions study on "U.S. Market Penetration of WaterSense Shower Heads, Lavatory Faucets and Toilets."</p>	<p>2008</p>	<p>PMI develops guidance for water utilities on indoor recycled water use.</p>	
<p>Lead from service lines leaching into the water supply due to a lack of corrosion control results in a public health crisis in Flint, Mich. PMI joins other organizations in a humanitarian effort to make the water supply safe again.</p>	<p>2008</p>	<p>PMI efforts at state harmonization continue as Maryland and Vermont pass laws that reduce the allowable lead content of plumbing fixtures.</p>	
<p>PMI continues to work with local, state and federal policymakers, industry leaders and professionals to achieve their vision of "Safe, and responsible plumbing. Always."</p>	<p>2008</p>	<p>EPA WaterSense releases a PMI-supported specification on commercial pre-rinse spray valves.</p>	
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<p>In response to drought conditions in California, the California Energy Commission mandates the nation's most stringent water-efficiency standards for plumbing products.</p>	<p>2011</p>	<p>NSF/ANSI 372 is published, establishing new procedures for verifying lead content of potable water products.</p>	
<p>PMI commissions study on "U.S. Market Penetration of WaterSense Shower Heads, Lavatory Faucets and Toilets."</p>	<p>2011</p>	<p>PMI spearheads introduction and passage of "Reduction of Lead in Drinking Water Act" (P.L.111-380) to harmonize certain state lead laws by reducing lead content in certain plumbing fixtures from 8% to a maximum of 0.25% weighted average. President Obama signs the law to take effect January 4, 2014.</p>	
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<p>PMI works with state legislators on California AB 715 and Texas HB 2667 on water efficiency go into effect.</p>	<p>2012</p>	<p>Georgia signs a comprehensive water efficiency law, the "Water Stewardship Act" (SB 370), which requires higher efficiency standards for toilets, faucets and urinals. It is the first state to require sub-metering of multi-unit residential, commercial and industrial buildings to be effective July 2012.</p>	
<p>PMI becomes co-convener of the International Emerging Technology Symposium, later called the Emerging Water Technology Symposium in 2017</p>	<p>2012</p>	<p>PMI efforts at state harmonization continue as Maryland and Vermont pass laws that reduce the allowable lead content of plumbing fixtures.</p>	
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