

Plumbing's Worth Continues to Grow

What do you feel has been the most significant medical innovation in the past 150 years — the one thing that has had the most profound impact on the health and wellbeing of not only those living in the United States, but of mankind itself? Many of you may guess it was the discovery of penicillin; others the invention of the computer; still others advancements in medical treatments and technology. Believe it or not, medical experts polled in 1999 considered the greatest advancement made in the 20th century to be the widespread installation of indoor plumbing and public sanitation systems. Those physicians claimed that this innovation nearly doubled the average lifespan of humans by decreasing the spread of such deadly diseases as typhoid fever, cholera, malaria, and polio.

Early American plumbers had a hard time convincing the population that moving plumbing into their homes and businesses would be healthier for them than the use of the traditional chamber pots and outhouses. They faced technical issues, including how to remove wastewater from the fixtures, how much water would be needed to cleanse the fixture after each use, and finally the destination of that wastewater once it left the structure. In addition to those technical aspects, they had to alter the attitudes of the population. The prevailing theory at that time was that illnesses stemmed from “bad air,” which was readily identifiable by its offensive odor. This led to a distrust of early indoor plumbing that tended to leak and oftentimes permitted sewer gas into the structure. It is no wonder that many individuals maintained a strong belief that elimination was best taken care of outdoors.

During the developmental years of indoor plumbing, innovations such as whole house traps used to prevent sewer gas from entering the structure became prevalent. Around the mid-1870s, the additions of vents aided in the flow of wastewater in the system as well as allowing much of the odor associated with the system to dissipate into the atmosphere outside of the building. As time progressed, innovations in the design of water closets, including water-retaining traps, went a long

way to provide the sanitary waste systems plumbers were striving for. Soon every plumbing fixture in the building had its own trap and vent. The main concern of the plumbers of that era was to provide a healthy environment by the elimination of waste products and odor from the living space. Unfortunately, the amount of clean water necessary to achieve that goal was tremendous.

The challenges facing the plumbing industry in the future will be just as daunting as those encountered by early plumbers. Scientific research and performance-based assessments of plumbing systems during the past 160 years have promoted changes in materials, sizing criteria, and installation standards for waste and vent systems. As the world's demand for drinking water increases, our ability to use as much potable water as necessary to achieve our goal of maintaining proper sanitation is no longer feasible. Government mandates requiring less water consumption at nearly every plumbing fixture will not only create numerous technical problems, but more importantly may begin causing health concerns that we had thought were long ago resolved. Case in point: low-flush toilets and waterless urinals. The lack of sufficient water provided to today's water closets prevents the fixture from being thoroughly washed after each use, creating a highly unsanitary situation. Even worse, waterless urinals have no means of cleaning the fixture at all! To compound the problem, drain line stoppages caused by inadequate water in the waste piping system to carry solid waste from the fixture to the point of disposal have been increasing, and the lack of water to dilute the chemical compounds found in urine allows those chemicals to solidify in the drain.

Is the focus of the plumbing industry now on conservation only, ignoring the need to provide the public with proper sanitation? IAPMO sees the need to safeguard our resources without sacrificing public health. Our association continues to be an industry leader, working tirelessly to find solutions to present, as well as future, sanitation



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