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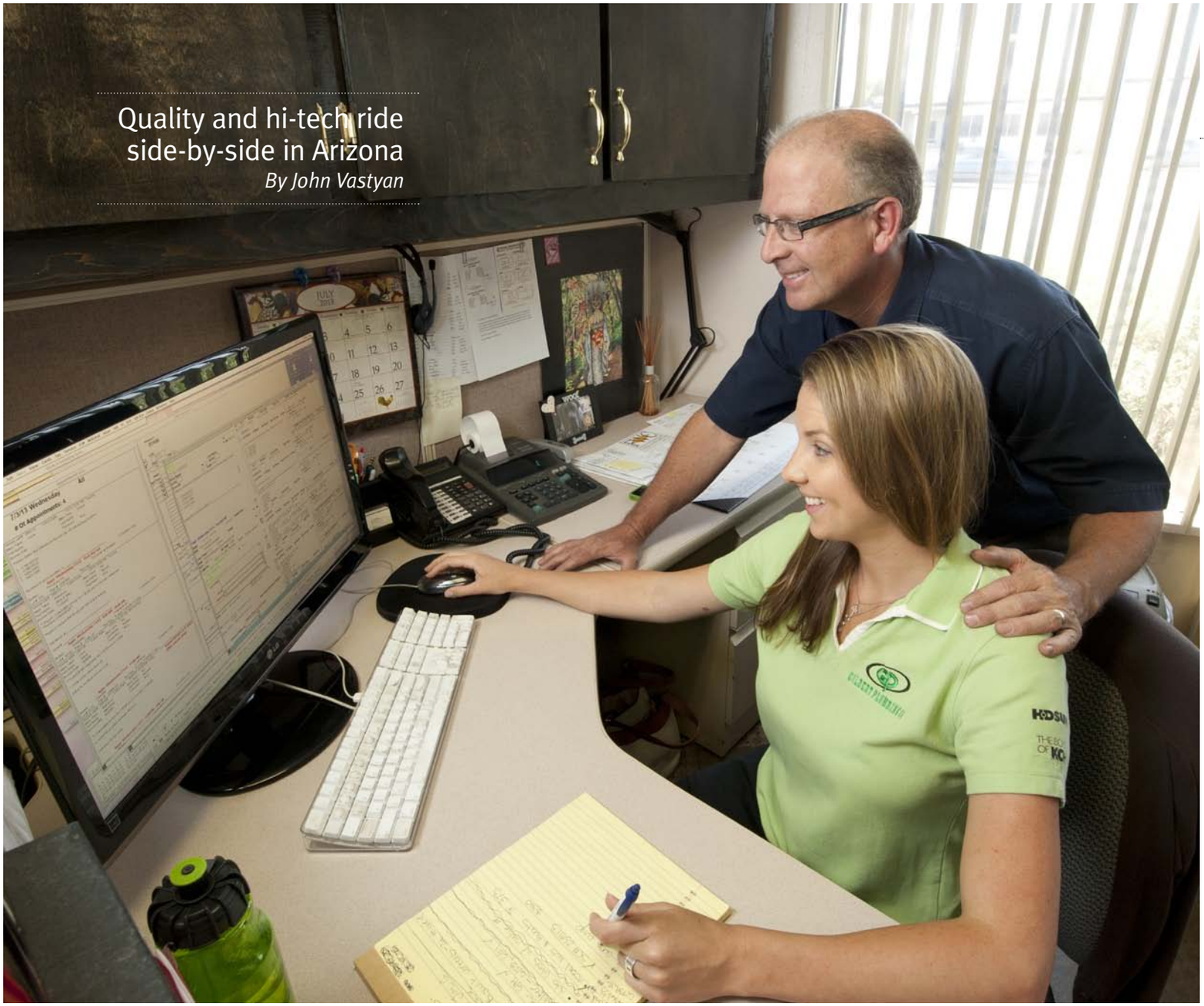
Quality and hi-tech ride side-by-side in Arizona

By John Vastyan



In it for the Long Haul

Ward Gilbert, president and owner of Gilbert Plumbing Company, and Daughter Lexie Gilbert (office manager) checking job history in Gilbert Plumbing's database system.

As a boy, Ward Gilbert found fascination with computers. In 1968, when he was in seventh grade, he wrote a term paper about the growing influence of computer technology, predicting the greater popularity of the machines long before most of us had a clue what a computer was.

The very next year, Ward also began working for his father Charles' business – Gilbert Plumbing Co., based in Mesa, AZ. "I enjoyed my father's business; I enjoyed helping in any way," he said, looking back on many years in the business, from helper to apprentice, then installation work, the shift to sales and estimates, and now as president and owner of the company.

"But computers were my passion," he said. Ward chose to work late at school on assignments, often diving into independent projects – anything that gave him more time to learn about office machinery and early computers.

By the time he reached senior high, the young Gilbert volunteered for after-school computer classes. There, he connected with rudimentary database programs. An observer might have foretold a split — that young Ward would veer off into computer work, leaving behind his father's plumbing firm. Instead, the unexpected happened.

By 19, he stumbled upon a database program that was suitable for Gilbert Plumbing. Laboriously, he began to track information about jobs in progress. To this day and through many evolutions of the software, he has put more than 35,000 hours into crafting a customized database for the family business. It became the foundation for many decades of success.

Data-based

"No business in the country has a database like ours, tailored as tightly to our work as the one we now use every day of the year," he said. "The software platform, even through many ownership changes and acquisitions, survived, so I've never had to rebuild it."

The database now tracks all facets of company operations, especially those things that tie to customer service and jobsite work: phone numbers, build dates, all activity on the job and everyone who did work there, equipment and fixture installations, change orders, service calls, etc.

"We've layered-in tens of thousands of parameters into the d-base now," Gilbert said. "The more we add to it, the more it reveals – like peeling back the layers of an onion." The database also tracks truck maintenance, gas use, payroll taxes and workmen's comp, invoices, payment reconciliation, employee productivity, quality control checks, bidding, company and truck inventory; even amendments for different cities.

"We've got a level of sophistication now that even permits the computer to watch for and catch problems and mistakes," he said

Look, Ma! : John Seim, journeyman plumber and service specialist

Though he learned at an early age to look at challenges in uncommon ways, he later channeled his interests while earning a business administration degree at ASU. Naturally, he fueled his interests in computer science. After graduation, Ward immersed himself into the family business and hasn't looked back since.

Today, Gilbert Plumbing employs 40 professionals that serve the Phoenix metro area. "The last few years have been very difficult," Gilbert said. In 2007, as a measure of just how bad the recession hit them, Gilbert Plumbing employed 130 people. "We've all had to work harder, smarter and longer hours, but it appears that we may at last be coming through the worst of it.

The firm focuses on new residential construction that includes high end custom homes (well into the $5 and 10 million range) as well as higher-end subdivision housing by national and large regional homebuilder firms. They do service work, remodeling and solar thermal installations as well. "Everything but industrial work," Gilbert said.

"An insistence on quality drives all of it," he said. "To that end, we've standardized on some manufacturers, including Bradford White water heaters," Through our decades of experience with them, they live up to and exceed our expectations – even when the water we put into them puts 'em through hell."

Water woes

"Here in the Phoenix area, our water quality is very poor; it's some of the worst and most aggressive water in the country," he said.

If professionals were asked to name "ground zero" for hard water problems in the U.S., the Phoenix area would certainly be at or near the top of the list.

Though climactic conditions are almost ideal for a large population, the water that comes from under the ground is about as ornery as it gets. Underground and municipal water supplies are, in Ward Gilbert's words, "off the charts" rich in scale-producing minerals.

Recently, Gilbert sought-out and installed an environmentally friendly water treatment system for an upscale home in a Phoenix suburb. Today, the homeowners are now enjoying the fruits of environmental responsibility through their use of salt-free water treatment. Gilbert Plumbing installed a Template-Assisted Crystallization (TAC) central treatment system.

Physical water treatment

TAC falls into a category of water treatment often referred to as Physical Water Treatment. The driving force for physical water treatment in the marketplace was to offer more environmentally friendly technology. The primary goals of PWT are to:

1. Eliminate the use of chemical additives
2. Reduce or end discharge water, regenerates or waste water
3. Have zero pollution and disposal costs
4. Minimize capital costs and ongoing maintenance

The technology behind leading TAC treatment systems was developed in Germany about 18 years ago and used throughout Europe for several years before coming to the United States about a decade ago.

TAC media starts out as polymeric beads (resin) in the 20- to 40 mesh size range. Catalytically active sites or templates are "imprinted" or coated on the bead surface through a batch-coating process. The exact recipe, procedure and precision with which this is done is critical to manufacturing processes, assuring optimized media performance.

Bradford White water heater with Watts OneFlow water treatment

PWT technology — offered in the U.S. by Watts as "OneFlow" — works by changing the physical characteristics of the solution being treated, though with little or no change in the solution's chemical composition. PWT is chiefly used to reduce the negative effects of water hardness (calcium carbonate) in plumbing systems, appliances and equipment (boilers, water heaters, dish washers, automotive and process washing equipment) valves and other components that generate or use heated water.

The vast majority of functional PWT devices work to promote hardness crystallization (mostly CaCO3) in the bulk solution so it isn't available to scale on downstream surfaces.

TAC is technology that influences the water solution at localized sites (on the media surface) such that hardness ions and their counter-ions (bicarbonate) combine to form inert nanometer-size "seed crystals." Called nucleation, this is where dissolved molecules or ions dispersed throughout a solution start to gather to create clusters in the sub-micron size range.

The sum of the seeds provides an enormous area for preferential growth of remaining hardness ions still in solution. Making use of the phenomena of low energy heterogeneous transfer, when the remaining dissolved ions reach their solubility shift, they attach to the seed crystals and continue harmlessly downstream, eventually to be consumed or end up to drain.

Gilbert Plumbing's Biltmore Estates job – Here's a good looking equipment room.

Water scale: a universal dilemma

Homeowners and building owners alike face the same challenge in battling the ill-effects of hard water. Protecting a plumbing system from damaging lime deposits, called scale build-up, can bring considerable expense, both up-front and ongoing.

Ignoring scale control is never a good option because eventually the cost for repairs or replacement will offset the initial savings. For many years, the installation of water softeners was the only proven technology for scale protection.

Water softeners, however, present their own set of challenges. They require electricity to operate. They take up precious space in already tight-cramped mechanical rooms. They demand, and then waste large volumes of water to drain during back-wash and regeneration cycles. They require salt or an even more expensive alternative (potassium chloride) to maintain performance. Clean water bears considerable cost coming in, and then must also be paid for as it makes its way into the waste treatment stream.

TAC is a media-based scale control technology that can be used in point-of-entry applications to protect whole buildings on the hot & cold side. Selecting the appropriate size TAC system is easily accomplished. Peak flow rate is all that's required to size a commercial system. Point-of-use systems are also offered to protect specific pieces of equipment that may be more prone to scale from water hardness.

"The [TAC] scale prevention is effective at preventing over 98 percent of the scale produced by the home's incoming hard water," Gilbert said. "The only maintenance required on the system is a simple media replacement after two or three years of service."

Third generation family business

Gilbert's wife Janet, a realtor, is a co-owner of the firm and for many years has been involved in management and strategic outreach for Gilbert Plumbing through her collaboration with owners of large homebuilding companies, other realtors and trade associations. She is also a board of directors member and incoming president for the American Subcontractor's Association, Arizona chapter. She plays an active role in helping to shape local and regional legislative issues that impact their business.

Their daughter, Lexie Gilbert, representing the third generation, has been an employee for 11 years. After earning a degree in kitchen and bath design at ASU, Lexie resumed her role at the firm which touches on many facets of company operations. She's now involved in helping a new employee learn the intricacies of the company's vast database.

"It's all about quality," Gilbert said. Their "family" has grown to include many employees, all of whom learn quickly that quality is more than a mantra; it's a way of life.

"Because of our focus on quality, we employ well-rounded and experienced journeymen plumbers," Gilbert said. "Most of our guys are 20-year company veterans – we do our best to reward dedication to the craft." **RJ**