

ESITECH Weathers Change, Remains an Industry Innovator

By Lindsey Coulter

For a company that has intentionally adhered to a steady, measured approach to growth, ESITECH Inc. — a designer, manufacturer and installer of integrated security control systems for the correctional market — has experienced several significant changes in recent months.

With the sudden passing of co-founder Bill Denton, Jeffrey Power, also a co-founder, became the firm's president and CEO, and Treasurer



Power

David Sizemore was named vice president and CTO. Despite the changes, the company continues to operate according to its tried-and-true philosophy for success.

Denton and Power had helmed the Richmond, Va.-based company together since its founding in September 1992, before which they worked together at another security integration firm.

Denton's dinner-table, business-plan pitch to start a new systems integration company that focused on industrial automation as well as security automation was intriguing to Power, an engineer with a strong knowledge of up-and-coming software and hardware as well as facility control.



Sizemore

Denton's years of experience, owning a successful design-build electrical contracting firm that specialized in industrial control, put the two in a good position to venture out on their own.

"We found success fairly quickly," Power recalled. "One of Bill's previous industrial clients had approached him about wanting to upgrade and update the automation system of a plant that [Bill] had done years before. So we started the company with two separate contracts in hand for industrial automation and control."

More and more contracts followed as a result of the firm's growing reputation as a design-build electrical contracting firm that knew its way around security

automation. In 1995, David Sizemore joined the firm as the senior software designer, becoming an equity partner in 2000.

Where most competing firms were fluent in the technology of the day,

primarily when it came to residential or commercial solutions, few understood how to operate in the architectural environment, according to Power. The ability to work with electricians and to run wire and conduit in complicated and

complex industrial, correctional and detention facilities quickly set ESITECH apart.

"Correctional facilities are more

See *Trade Files*, page 30 ➔



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Trade Files, from page 27

like industrial buildings with the type of conduit and wire you have to use, the security involved, etc.," Power added. "That was our biggest thing: We could speak the language of the electricians in the field to clearly document and show what they needed to do to successfully install our system. We're still told every day that our documentation — from our shop drawings to our facility layouts — are unmatched. I think that has helped to drive our industry to show more detail and do a more thorough job of designing each project individually."

Guiding Principles

From its outset, ESITECH has prioritized quality projects; for Power and Denton, everything else was secondary.

"We can afford to lose money, we cannot afford to lose reputation, not even once," Power said. "ESITECH's

person] that can."

That focus on quality and service also informed the company decision to diverge from the vast majority of systems providers to eschew proprietary electronics. With their background in industrial work and using non-proprietary systems and software, Denton and Power instead used industrial controllers that could stand up to tough environments, making them ideal for correctional and detention settings. They also used open software that could be tailored to any situation instead of a proprietary solution.

"That was ESITECH's goal and niche from the get go: Give the customer the product that is readily available," Power noted. "ESITECH was always pushing for off-the-shelf, non-proprietary systems throughout the industry. It meant customers were not married to ESITECH because non-proprietary systems are serviceable by others. The

"What clients need most is a streamlined, integrated system that helps them without being cumbersome to operate," Power said.

reputation for quality work is something every team member is on board with. We never want to lose profit, but if it's our issue, we will take care of it. That's always been something ESITECH is huge on; if we can't help you over the phone, we will get someone [to you in

customer would return to ESITECH because of the quality and service they were offered.

ESITECH in the Field

Designing the ideal ESITECH solution usually begins with a face-to-face



Photo Credit (all): ESITECH

Early discussions with owners and end users ensure the ESITECH system will truly meet a facility's needs and provide ample opportunity to fine-tune various elements.

meeting with the facility owner and/or end user, a project engineer, architect or security consultant. Those early discussions ensure the ESITECH system will truly meet the facility's needs and provide ample opportunity to fine-tune various elements.

The company also works to develop features that serve, rather than overburden, the client or end user. Systems can sometimes offer too many bells and whistles, according to Power, so ESITECH works hard to balance flexibility with ease of use.

"What clients need most is a streamlined, integrated system that helps them without being cumbersome to operate," Power said. "ESITECH works to

streamline our procedures, which then makes us more competitive and makes the systems easier to service and maintain."

Additionally, the company prides itself on being flexible as a project progresses. "We've always employed the client to be part of the design team and allowed changes to be made up until the day we turn over the system if it's feasible," Power continued. "We want to make sure the client's system is what they need and what they want."

Using this tailored approach, Power estimates that ESITECH has provided security integration solutions of various forms and fashions — from smaller camera systems to fully integrated solutions — for up to 150 correctional clients. For now, the company works primarily along the East Coast, with clients from Buffalo, N.Y., to Tampa, Fla., and as far west as Dallas. Looking to the future, Power and Sizemore hope to expand ESITECH's reach in the integration market, while continuing to work with many of its original clients.

"The vast majority of our clients from 23 years ago are still with us in some form or fashion. ESITECH's very first correctional facility [project] was in 1993, and we still service, upgrade and maintain that system today," Power said.

Navigating Change

ESITECH's 20-plus-year history has given the company a strong foundation and a unique insight into changes within the industry. Power and Sizemore have watched the advent of IP video and full video integration explode in recent years as well as the need to leverage the Internet for a variety of needs.

"You see [correctional facilities] flirt with [IP video] then back off as they realize the security implications of having any sort of real-time access — be it something as straightforward as video visitation to video monitoring off site,"



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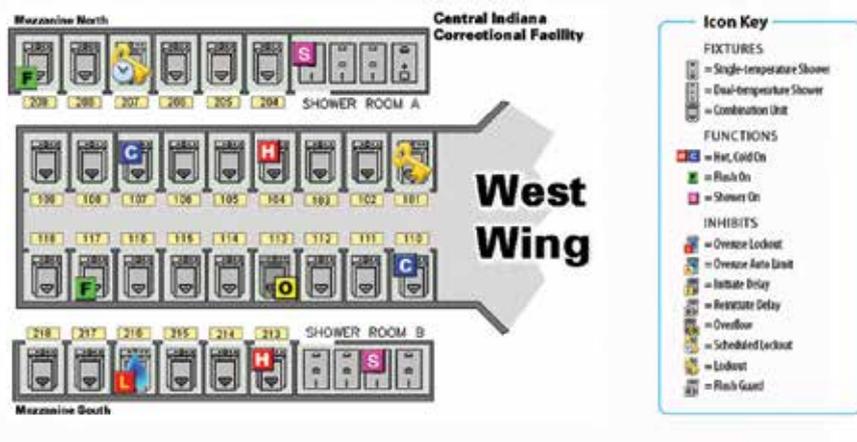
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See **Trade Files**, page 44 ➔



An example of an operator workstation used in correctional facilities.

do more and are more easily configured than previous generations. Most can operate standalone, networked or networked with third-party servers. Much greater functionality is available for the facility's benefit including graphical touch-screen interfaces, simultaneous flush prevention, usage logging including overflow and alarm conditions, fixture-use scheduling, inter-flush delays and multiple operator security levels.

Willoughby Industries' standalone WMS consists of a 24 VAC chase mounted cell valve controller (CVC), 120/24 VAC transformer, vandal-resistant fixture-mounted electronic pushbuttons, electronic lavatory/toilet/shower, electronic solenoid valves and color-coded wiring harnesses. Standalone means the individual CVCs are not networked together, and they operate independently. Each CVC provides control of six inputs/outputs plus two toilet overflow prevention inputs. An individual CVC can control the equivalent of two combination units (two hot water valves, two cold water valves and two flush valves) or six shower valves. Standalone CVCs are pre-programmed by a remote programming module and have integral diagnostic troubleshooting LED lights. In the event of power loss, CVCs will retain all programmed parameters in memory to enable quick startup following the return of power. The Willoughby WMS has many more features that offer correctional staff flexibility in programming the function of the fixtures to meet their specific needs.

Willoughby's networked WMS employs the same CVC, pushbutton and valve hardware as the standalone version, and is connected via a Controller Area Network (CAN) bus network to a PC-based operator workstation. This workstation features simple-to-interpret custom facility floorplans that enable staff command of the WMS with minimal training. In instances where the WMS is required to integrate into a third-party server that operates other controls such as lighting and/or door controls, the Willoughby WMS II Water Management system offers simple integration via the

CAN bus network structure.

How Does a WMS Save Water?

Studies have shown that an average toilet flush count per capita is five flushes per day. However, in a correctional facility cell setting, the average is typically much higher due to factors such as misuse and courtesy flushing. A WMS can limit the number of flushes in a specific time period, such as per minute, per hour or per 24 hours. A WMS can also limit the number of flushes by employing an inter-flush delay feature, which locks out the flush cycle for a pre-programmed amount of time up to four hours following the prior flush. With most toilets rated at either 3.5 or 1.6 gallons per flush (gpf), the water savings attainable with a WMS can add up fast.

If an inmate decides to plug up the toilet waste line in an attempt to flood the cell, the WMS can sense higher than normal toilet bowl water levels and electronically disable the flush valve until the bowl water level returns to a normal state. Here, the benefits include water savings and elimination of potential water damage due to flooding.

Even more savings are attainable in the case of shower fixtures. A WMS can limit water consumption in showers by restricting use via scheduling lockouts and/or run time limits. Most penal showers flow between 2 to 3 gallons per minute (gpm), and have no run time limits of any type other than basic time restrictions placed on use by correctional staff. Shower run time limits can dramatically increase water savings.

If a facility decides to implement run time limitations or inter-flush delays on security plumbing fixtures, careful consideration should be used to ensure that the limits or delays are reasonable.

Enhancing Control

Correctional staff often wants greater control of the inmate plumbing fixture functions for a variety of reasons. One reason is that toilets are often used by inmates to dispose of contraband. With a networked WMS, staff can disable specific individual toilet or combination unit

fixtures or a complete grouping (wing, cell block, etc.) of fixtures with a few simple commands at the operator workstation. This can allow for more effective contraband searches.

In larger facilities, significant plumbing system damage can result from inmate abuse by simultaneous flushing of fixtures at a specific time. A WMS can prevent simultaneous flushing by prioritizing flush requests from individual fixtures and creating safe intervals between each flush actuation signal.

Getting Started

If your interest relates to new facility construction, your design team can assist in selection of a WMS-based water conservation strategy, perhaps with LEED status accreditation as one of the goals. Design professionals are increasingly specifying WMSs for use in specific sections of a facility or in entire facilities. Willoughby manufactures 1.28 gpf gravity flush toilets, 0.5 gpf vacuum system toilets, lavatories and security showers with a variety of flow rates, all of which are easily controlled by the WMS.



Willoughby's Cell Valve Controller

For a retrofit of existing facilities, consider this path forward. As each facility is different in terms of water usage patterns, water availability issues and water utility costs, it can make sense to begin with a simple water audit. What are the consumption levels of your primary toilet and shower fixtures in gpf and gpm, respectively? Do you have any existing usage restrictions in force? What are the primary drivers of your water and sewer bills? Identify the areas where the most significant water savings can be found or where greater fixture control is desired. Remember that your toilets and showers often represent your greatest savings potential in the inmate areas, as opposed to lavatories.

Once the areas with greatest savings potential are pinpointed, examine the plumbing chase areas for the availability of 120 VAC power. Does it exist in the chase? If not, is there a source nearby that can be used? Assuming power is available, a CVC can be located in the chase to control the adjacent fixtures. It is likely that new electronic valves and fixture pushbuttons will be required for the fixtures to be placed under WMS control. Most security fixture manufacturers produce valve and pushbutton retrofit kits that can adapt to your existing

fixtures. If you need assistance along the way, call Willoughby Industries, which can assist with the selection of the proper components to retrofit your fixtures.

If you are like most facilities, you may have budget factors to consider. Start with a small area and install a standalone WMS. Once installed, assess the results of your work and determine how you might fine-tune your retrofit to achieve the most impactful results in terms of water usage and enhanced control. You can then continue with retrofits as time and budget factors allow.

Craig Alderson is the president of Indianapolis-based Willoughby Industries.

Trade Files, from page 30

Power observed. "There were initial pushes to provide that; now you're seeing facilities sort of pull back [as a result of] legal and security issues with having outside access. That's a constant challenge."

While the company has witnessed changes within the marketplace, the biggest change in recent months has been a bit closer to home. When co-founder Bill Denton passed away in August, the loss was felt across the company and the industry.

"He had such a dynamic personality. He was probably the best teacher I've ever had," Power said of Denton. "When we started the company he was a bit older than me. He had taught in the electrical union apprenticeship program for six years and everything he taught he put into practice. He enjoyed being a mentor and wanted to teach."

Denton in particular preached financial health and good credit, values that have kept ESITECH debt-free for most of its existence and fostered a culture of careful spending and investment, allowing the company to weather economic downturns with relative ease. Power and Sizemore will adhere to these same principles.

"If you didn't know what [Bill] was thinking, you weren't listening," Power said of Denton. "His straight shooting will be sorely missed not just here, but in the industry. He really gave us a great road map on how to continue."

Where some companies may have faltered at the loss of such a key member, Denton, Power and Sizemore's strong foundation ensured that ESITECH will continue to thrive. "Sizemore and I will continue with the plan we had developed over the years," Power said.

That plan, in part, is to expand ESITECH's reach into the Midwest region and eventually across the Mississippi, while still being mindful of careful, controlled and efficient growth.