

# DIGITAL DESIGN & CONSTRUCTION

Interoperability in Action

**F**rom pipelines to powerplants, educational institutions to health facilities, performing arts theaters to sports stadiums, owners and building professionals have looked to technology for change. More than just a way to autonomously analyze data, today's advanced solutions must share information, facilitate business processes and enable communications. They must, in essence, interoperate.

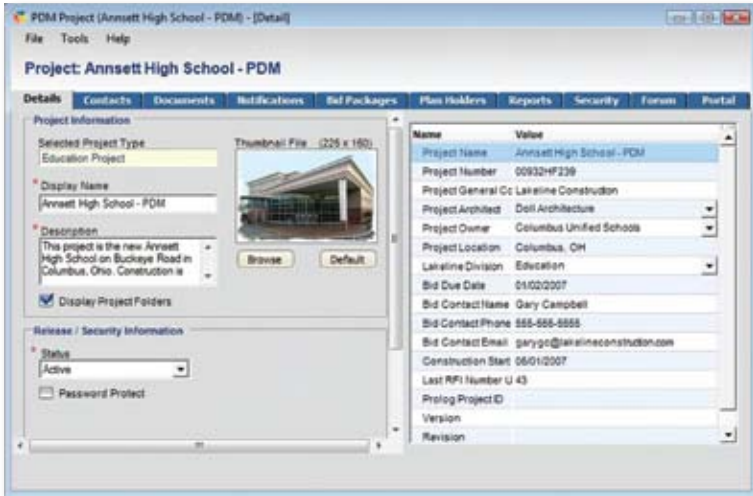
In 2004, the U.S. National Institute of Standards and Technology estimated that the cost of non-interoperable technology solutions was almost \$16 billion annually. The companies and projects highlighted in the following special section represent a few of the pioneers who have sought to reduce the staggering cost of disconnection by finding systems that work together.

These companies and many others have found ways to leverage interoperable tools that seamlessly push and pull data to ultimately create the framework for more creative, innovative and efficiently-built solutions that will define the next era of building and infrastructure.

By Vicki Speed

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## Texas-Based Contractor Reaps Rewards of Interoperable Expectations



of the project life cycle—project and document management.”

To this end, Austin Commercial implemented the Prolog® project management control solution from Meridian Systems to drive collaboration, purchasing management, cost control, document management and field administration. Next, Cardenas and his team implemented the Project Document Manager (PDM) document control solution from McGraw-Hill Construction (MHC), an interoperable document management tool designed to store, post, print and manage documents from pre-design through close-out directly from the MHC Network.

“Beyond functionality, the value of PDM is its integration with tools such as Prolog which allow us to synchronize all project data from design documents to project schedules and costs,” explains Cardenas.

“The possibilities are endless but the main integration points are document control, project management, schedule, accounting and, most recently, building model objects.”

PDM offers full integration with Prolog, as well as with AutoCAD® for design review, an E-plan room for construction and a comprehensive cradle to grave archive process for closeout and facilities management. It also provides access to Thomas Reprographics and the MHC/ReproMAX national network of plan room and reprographic centers and integrates with MHC’s Network, Dodge and Sweets. Additionally, PDM users can search the MHC Network - Global Directory for subs and vendors and then synchronize that information with Prolog or other tools.

Perhaps, the most satisfied user of the PDM/Prolog tools is Warren Ames, corporate project controls manager. He says, “Close-out documentation, typically one of the most painstaking and tedious aspects of any project, is light years better than just a few years ago. I have all design, schedule and cost information at my fingertips along with the ability to process the necessary documents into one cohesive unit. Preparing close-outs has become, dare I say, almost enjoyable.”

Cardenas concludes, “The industry has talked about interoperability for years and many don’t realize that it’s actually possible, particularly in the area of project management. While we’ve still got some work to do to bring design, estimating and scheduling systems together in a similar interoperable environment, we believe building information modeling is the spark necessary to take this next step.” ▲

When a firm grows from a predominantly Texas-based regional company to operations in six additional states and over \$1 billion in annual revenue in just 10 years, some might expect to see signs of growing pains.

Yet, for Austin Commercial, an industry-leading commercial building general contractor, this steady growth has sparked powerful and positive change. In this time, the firm has reshaped its conventional business processes and incorporated today’s most advanced technology solutions to meet the needs of its increasingly complex, geographically diverse organization.

Fred Cardenas, project management systems and technical support at Austin Commercial, says, “Along with the challenges of geographic diversity, technology advancements in general have changed expectations. Gone are the days where a cell phone and fax machine are sufficient. Our typical jobsites have multiple T1 lines, voice over IP telephones, high-definition video conferencing and large format printers. Owners, architects and our own employee owners have come to expect the availability of these tools in order to facilitate communication.”

While continuing its business growth to new regions, Austin Commercial has focused on creating a technology-driven business process that reduces redundant data entry and consolidates data and reports into one centralized data store.

Cardenas says, “The idea is to link silos of data and exchange it with various organizations, users, systems and platforms, in essence to deliver interoperability. Although interoperability sounds easy, it’s not. In order to be successful you need to establish the fundamentals and develop a set of clearly defined goals. We started with two key components





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## Specialty Contractor Edges Out Competition with Production Control

**"**If you cannot measure productivity, you will probably not be successful at managing it," says Scott Kimpland, director of Project Execution for FMI Corporation.

The inability to easily and accurately monitor actual production rates versus estimated rates can cause inefficiency, or worse, put a contractor out of business.

"For many labor-intensive contractors, a 10% change in productivity can have a 50% or greater impact on the bottom line," adds Kimpland. "With this in mind, the best and most profitable contractors have great systems and processes in place to monitor the 'score' from the first day of the project to the last."

PC Haines Drywall & Ceiling Contractors, a Salunga, PA-based specialty contractor, is one of these companies. With about \$5 million in revenue annually, the firm accurately measures labor production on any given project—in near real-time—using a cost control solution integrated with estimating and bid information.



PC Haines project site, Area 6, Fort Indiantown Gap, PA, steel stud installation.

### ELIMINATING THE GUESSWORK

PC Haines specializes in the installation of drywall, acoustic tile, plaster, steel studs and exterior insulation finishing systems (EFIS) on commercial projects throughout Pennsylvania, Maryland, Delaware and New Jersey.

Several years ago, the firm implemented Digital Production Control™ from On Center Software, a labor production management tool. The tool is integrated with the estimated budget from On Center's Quick Bid and the graphical takeoff within On Center's On-Screen Takeoff®.

Foremen in the field enter production information into the Digital Production Control solution where it is combined with project estimates and budgets. The data is compiled into visual and easily accessible reports that reflect labor production tasks, labor hours and completion percentages.

Paul Haines, owner of PC Haines, says, "Everyone from foremen to project managers have instant production information. It gives you the ability to see where your overruns will be, and try to do something about them. We always know the status of our job."

### INSTANT ACCESS FOR ALL

PC Haines' foremen rely on the system to line out work crews at the beginning of the workday based on the estimated budget for the labor tasks to be completed. At the end of the day, the

foremen can review real-time data regarding the work that has been completed.

Haines adds, "We know immediately if there is a production problem at any point of a project since hours are directly correlated to how much material is in a job. If our hours are working out, then we know materials are pretty close. If we see a potential cost overrun problem, it shows up in red, giving us time to react."

The day-to-day visibility of a project's progress can distinguish one contractor from another.

FMI's Kimpland says, "Many companies do not realize that a project is in trouble until it's 90% complete. At that point, it's too late to do anything about it. The key is to identify productivity problems early in the project when corrective actions can be taken. A tool like Digital Production Control takes all of the guesswork out of how a project is performing and provides a great way to set daily goals with the crew based on the estimate."

Haines agrees, concluding, "What often separates me from my competitors is the low cost of overhead to manage projects effectively. [Most companies the size of PC Haines] must have twice as many people managing projects costs. We do it with two or three. Digital cost control has dramatically changed our bottom line. We are more efficient while providing our clients with consistently accurate bids and quality products." ▲





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## The Importance of “Deliverability” in Your Project Communication



**E**ffective and successful project management relies on timely and effective communication. Anyone managing a project must be able to respond quickly to inquiries and requests for information from project participants.

Email and fax technology has made it easy to send more messages faster than ever before. Unfortunately these same delivery channels have become clogged with spam and junk messages that, ironically, have made it more difficult for you to get the attention of and response from your recipients.

Measuring whether or not your messages are received is called “deliverability.” Companies that don’t address this growing concern can expect certain consequences:

- ▶ Skipped, missed or miscommunication with contractors and suppliers can directly result in lost projects and lost profits
- ▶ Legal action and fines can occur when messages are viewed as spam
- ▶ Annoyed recipients have the ability to ban all future communications (blocks and spam reports)
- ▶ Your company can actually get “blacklisted” by major delivery systems and internet service providers (ISPs), affecting all future communication

Because marketers have used this medium to deliver unsolicited messages, corporate IT departments and ISPs developed spam filters and auto junk filing to filter messages being delivered to recipients.

The more companies try to bypass these filters, the stricter the filters get and the worse the deliverability challenge becomes for everyone. The major email ISPs review and calculate the reputation of the sender. Reputation is determined by the number of messages sent, the number of bad addresses and the number of recipients reporting your message as spam as well as other factors. Your reputation determines if your

mail gets delivered to the junk folder, or at all. Sending 100 to 1,000 emails as a project blast has not just become ineffective, but can actually be detrimental to your reputation and future communication efforts.

Before you continue your project communication efforts, examine your current process to ensure that you are being as effective as you can be.

### Some questions to ask:

- ▶ Is someone monitoring the number of messages sent or your response?
- ▶ Are you getting the desired response from your existing system?
- ▶ Are you analyzing the cost and effect of unsent messages (bad email/fax), “bounce backs” and undeliverable messages, unread messages (placed in junk/spam folder)

The Blue Book’s BB-Bid system can help. This free project communication network can improve your deliverability and the effectiveness of all of your project communication.

The Blue Book employs industry best practices and utilizes delivery methods that take into account deliverability measurables. The Blue Book has built relationships with the top FAX and email ISPs so BB-Bid, quickly becoming the industry’s premier vendor communication system, can help you stay focused on building relationships not simply messaging.

### Interesting Statistics:

- ▶ B2B subscribers are twice as likely to consider email spam if it comes too frequently. The Blue Book realizes the importance of the effectiveness of your message rather than the quantity. The BB-Bid messaging platform allows you focus on the “who” of messaging not the “how.”
- ▶ 31% of B2B email addresses will change this year. The Blue Book can help you keep your database up to date and reduce the number of undeliverable messages.
- ▶ Inbox providers such as Yahoo, AOL and Gmail all use the percentage of people who hit “report spam” for a particular sender as the number one gauge in whether to deliver incoming email or not. By taking advantage of The Blue Book’s knowledge of deliverability you can minimize the risk of your messages being viewed as spam.

*Make sure your company is examining deliverability and consider The Blue Book’s BB-Bid system to help expedite your project communication as well as protect it.*

*Please call 888-303-2243 if you have any questions or would like more information. ▲*

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## Harnessing the Sun's Rays

Owners and industry professionals now have a solar-powered "green" security solution as an alternative to environmentally unfriendly gas generators or to support limited power source conditions.

The solar mobile surveillance unit (MSU) from CPS Security includes a 360° rotating solar panel and night vision cameras. This self-contained surveillance powerhouse can be located virtually anywhere for maximum flexibility. With a quick and easy setup, the MSU is ready to connect and protect any property or construction site without any of the typical surveillance system limitations.

The new CPS Solar MSU features an exclusive power-management system that constantly monitors equipment conditions of and transmits signals back to the central station. An extended battery backup powers the system for up to four days in the event of an outage.

Many find that the Solar MSU quickly pays for itself through energy and equipment cost savings. "Through the use of infrared illumination and without the need for expensive, polluting generators, the energy cost savings are substantial, while benefits to the environment are evident," said Chris Coffey, CEO of CPS Security. "We are committed to doing our part to become more energy efficient and to reduce pollution."

CPS's signature product, the eCamSecure™ MSU is known to reduce the overall cost of construction site security while increasing efficiency. Its mere presence is a crime deterrent as it maintains wireless visual and audio contact with a property owner or builder 24 hours a day. For over 22 years, CPS Security Solutions has been known as an industry leader in surveillance and protection of construction sites. CPS takes great pride in its research and development of industry innovations fueled by cutting-edge technology. ▲



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## Engineering a New Approach to Project Controls

**W**hether designing an advanced processing plant or a turnaround pipeline maintenance contract, engineering an oil and gas project begins with the schedule, not an estimate.

Engineers from CH2M HILL's energy and industrial business unit believe the distinction is significant. In a break from conventional practice, they have set aside traditional cost estimating techniques in favor of a schedule-driven project controls approach built on advanced interoperable technology.

Fumio Otsu, project controls manager with CH2M HILL, says, "For the first time, we can focus on managing the project, rather than trying to correlate resource data and estimates to the project scope."

The project controls approach begins with engineers defining activities for a given project using the Primavera P6 scheduling program. These activities are detailed within the WinEstimator construction estimating solution. When the estimate is complete, the cost and resource data is pushed back to the scheduling program where it is aligned with properly sequenced schedule activities.

A fundamental part of this project controls method is an interoperable technology framework between the scheduling and estimating tools.

The push and pull of data between the estimating and scheduling tool is facilitated by an application programming interface data



transfer built into the WinEst software, which allows the software to communicate directly with the Primavera scheduling solution.

Otsu explains, "This direct connection brings all schedule and cost data together when we need it, how we need it. In minutes, we can create a functionally complete schedule and cost performance program for any project at any time. Bottom line, we have complete budgetary control and visibility."

So far, this technology-driven project controls approach has helped Otsu's organization achieve 10% productivity gains in scheduling and reporting, delivering information consistently and producing accurate estimates. ▲

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## Contractor Paves New Technology Connections

From runways to roadways, Looker and Associates, a leading general contractor based in Puyallup, WA, builds and rehabilitates highways and infrastructure for public and private clients in the Northwest.

Now this expert asphalt manufacturing and construction company has paved its way into an impressive company-wide digital transformation that connects its people, processes and data. The first layer of this foundation began several years ago with the implementation of HCSS's *HeavyBid*® Estimating.

Bryce Sturrock, estimator for Looker, says, "Shifting to advanced bid management gave us a first look into technology's value. We were instantly able build new bids from previous jobs, change hours and labor, adjust fuel and maintenance costs, track payments and much more."

Yet, Sturrock and his team also realized they needed to create a similar technology edge across the company, to connect estimates with actual project data. Last year, they did just that. Looker purchased laptops equipped with wireless broadband cards equipped with HCSS *HeavyJob*® Field Management Software for its project foremen. Back in the office, Sturrock and his staff implemented *The Dispatcher* Resource

Management Software to track the company's crews and equipment replaced traditional magnet and dry-erase boards.

"Every system, from the bid package to the project management tool to the resource system, works seamlessly to store, share and analyze project information as needed to support everyone from executives to foremen," adds Sturrock.

HeavyBid's general cost information is pushed to the field providing foremen a baseline to compare actual labor, equip-

ment and materials usage. *The Dispatcher* resource management software tracks the company's resources across all jobs. As a project moves for-

ward, foremen enter actual values for labor hours and material usage into HeavyJob from their laptops in the field, which is then used to automatically prepare daily progress reports for superintendents.

Sturrock concludes, "This interoperable workflow has empowered our company. We are more efficient and knowledgeable about our business, giving us an unbeatable edge against our competition." ▲

*An interoperable technology framework has empowered our company.*

*Bryce Sturrock, Looker and Associates.*