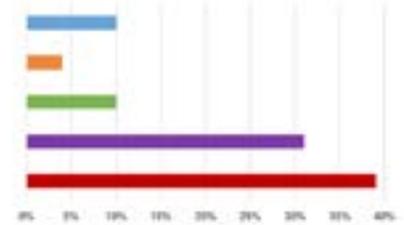


TRENDLINES

Project managers' education



More than one-third (39 percent) of respondents to Zweig Group's 2015 *Project Management Survey* have earned a **four-year bachelor's degree**. Another 31 percent hold a **master's degree or MBA**, 10 percent have a **five-year professional degree**, and 4 percent have an **associate's degree**. Ten percent have **no college-level degree**. — Vivian Cummins, research analyst assistant.

The top leader's REAL job

When seeking to define his or her position, a top leader should consider these 7 vital responsibilities.

“One of the big questions every leader has to ask him- or herself is: ‘What is my REAL job as a leader?’”



Mark Zweig

EDITORIAL

Because top firm leaders (CEOs, presidents, managing partners, etc.) probably have a better opportunity to define their own roles than those who aren't in leadership roles, one of the big questions every leader has to ask him- or herself is: “What is my REAL job as a leader?”

Here is some of what I think it is:

- 1) Defining and communicating the mission for the organization.** Why does the company exist? What does it stand for? Why is it a worthwhile organization to devote your time to or to give your valuable business to? The answers to these and many other questions related to purpose are the domain of the top leader. If you can't do it, who is going to? The person who can give life to these questions should be the top leader.
- 2) Defining and communicating the vision for the organization.** What are you trying to become by some point in time? How large? Doing what for whom? The vision is so essential. We routinely see a lack of clarity for what the firm's vision is and that, in turn, paralyzes every single decision management has to make – large and small. The top leader has to define the vision, sell it, and continue to communicate it, over and over.
- 3) Getting the right people in the right roles in the organization.** This also includes recruiting. Who is on the team and what position are they in? Takes a continuous effort to analyze and make the changes needed. New hires, reassignments, and firings – all part of

See MARK ZWEIG, page 2

FIRM INDEX

APAC-Missouri	10
Balfour Beatty Construction	12
CO Architects.....	6
Cobalt Office	12
Escobedo + Solis	12
First Office	12
Fluor Corporation	2
Gensler	4
HCSS	10
JE Dunn Construction	6
KSS Architects	5
MBP	8
Process Plus	7
SERA Architects	6
Stork Holding B.V.	2
Svigals + Partners LLP	11
Ultramoderne	12

MORE COLUMNS

■ FROM THE CHAIRMAN: Are you a principal? Page 3

■ FINANCIAL FITNESS: Cash flow, year-end, and predictability Page 9

Safety First



Page 5

Technology fuels team

Page 7

FLUOR IN THE NEWS

SOLAR PHOTOVOLTAIC POWER PLANT PROJECT NAMED 2015 BEST PROJECT SAFETY AWARD OF MERIT WINNER Fluor Corporation (Irving, TX) announced that its Centinela Solar Energy project has been named 2015 Best Project Safety Award of Merit winner by *Engineering News-Record* for the California region.

Fluor performed engineering, procurement and construction services and is now providing operations and maintenance services for the new, 170-megawatt solar photovoltaic facility located on approximately 1,600 acres in Imperial County, California. Fluor completed the project safely by working more than 700,000 construction hours with no lost-time accidents and no incidents.

GAS PROJECT IN PHILIPPINES NAMED PLATTS GLOBAL ENERGY AWARD FINALIST Fluor announced that its Shell Philippines Exploration Malampaya Phase 3 Project has been named a finalist for Engineering Project of the Year for the Platts Global Energy Awards.

“Being named a finalist for Engineering Project of the Year by Platts is a great honor and recognizes the integrated solutions approach provided by Fluor’s team on this project,” said Ken Choudhary, Fluor’s energy and chemicals president for Asia Pacific. “Fluor’s material management for onshore and offshore fabrication, and the delivery and installation of equipment and materials, enhanced the engineering effort for this project.”

Fluor’s BASF Jade Tree project was also named a finalist for Construction Project of the Year by the Platts Global Energy Awards. Located in Shanghai, China, the project is a high performance chemical production facility. Fluor per-

formed front-end engineering, detailed design, procurement, construction management, commissioning and start-up.

FLUOR GARNERS UK BINDING CORPORATE RULES APPROVAL FOR SECURE EMPLOYEE, CLIENT DATA The Information Commissioner’s Office of the United Kingdom has formally approved Fluor’s Binding Corporate Rules for handling of employee and client data.

The data protection authorities in other European Union member states have accepted the approval under a mutual recognition procedure, and Fluor will seek approval in certain other member states. Under European Union law, the transfer of personal information to non-European Union countries is only permitted where appropriate systems and safeguards have been put in place.

Adoption of Binding Corporate Rules is one way in which organizations can satisfy these requirements. The ICO approval indicates that Fluor meets the high standards required under European Union law when it transfers personal information among Fluor entities globally.

FLUOR ACQUIRE STORK HOLDING B.V. Fluor announced that it has signed an agreement with U.K.-based private equity firm Arle Capital Partners to acquire 100 percent of **Stork Holding B.V.**, based in the Netherlands, for an investment of \$755 million.

Stork is a global provider of maintenance, modification and asset integrity services associated with large existing industrial facilities in the oil and gas, chemicals, petrochemicals, industrial and power markets.

MARK ZWEIG, from page 1

the top leader’s job and one that takes constant attention to do it well. And by the way – even though not everyone is (obviously) a direct report, it does not mean you should be laissez faire when it comes to who works in the firm in any job.

4) Determining basic resource allocation issues. What will the firm spend money on? Will you buy other companies? What should the marketing budget be? Where will you grow? What will you invest in? Where the money goes is a really big part of the job of the top leader of any firm in this business.

5) Confronting “uglies.” This is everything from a non-productive principal to a non-paying client to a bank credit line that’s out of compliance to a problem employee who is alienating everyone else – whatever the worst things are facing the firm. The top leader **HAS** to do this. No one else can or will.

6) General cheerleading. You gotta be up when everyone else may not be. Constantly selling the future – why it’s good to be there, why the firm will do well in spite of any obstacle – this is your job. Optimism, general cheerfulness, and ability to see light at the end of the tunnel even in the midst of major crises – the top leader has to have this ability in his/her toolbox.

7) Setting an example. Always the job of the top leader. People will do as you do –not as you say. So work ethic, communication speed, willingness to do dirty work when necessary, compliance with company policy, self-sacrifice, and so much more all have to be exemplified by the top leader if you expect anyone else to model those behaviors.

There’s a lot more ... so much more. But I’m out of space. See you next week! ▀

MARK ZWEIG is founder and CEO at Zweig Group. Contact him at mzweig@zweiggroup.com.

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OPINION



Are you a principal?

Defining the principal role requires considering what needs to be done in order to lead a team to success



Ed
Friedrichs

FROM THE
CHAIRMAN

In working with clients, I've often been asked this question, most frequently by a senior person who thinks he or she ought to be made a principal in their firm, or by the firm's leadership team when they're considering elevating a person. Most often, though, the question is posed after a person has been named a principal, and the leaders are struggling with how to define the new principal's role or job description.

Just because a person is made a principal, it doesn't mean they automatically know how to act upon the change in their role in the firm. What should they be held accountable for? What behavior should they display?

"Foster an environment that achieves a positive team esprit, happiness, and a sense of pride in accomplishment. Encourage ongoing professional learning and career development among team members."

In defining the role of a principal, we need to look at what must be done to lead a firm or a team of people to achieve success. There's an inventory of tasks and roles that need careful attention at all times for an enterprise to be successful – for its clients, for the people in the firm, for financial

success. In fact, this holds for all stakeholders, including consultants, a jurisdiction's building and planning departments, bankers, contractors and sub-contractors, vendors and their sales teams, and everyone who participates with or comes in contact with your team/firm. I suggest firms think of the principal role in this holistic fashion.

Here are some roles for you to consider:

- Make it the entire team's responsibility to achieve client satisfaction. Make each team member a part of monitoring how your client feels about the way you are serving them, shaping your services to continually improve that relationship. Measure your success in this role through repeat and referral business from your clients. Continually develop relationships with potential clients and those who can introduce or recommend you to them. Be an active networker in the community. Continually nurture the relationships you've established.
- Create a collaborative working environment for everyone involved in your work, including all internal and external stakeholders. You can treat the building inspector or contractor as your enemy, or

See ED FRIEDRICHS, page 4



INDUSTRY NEWS

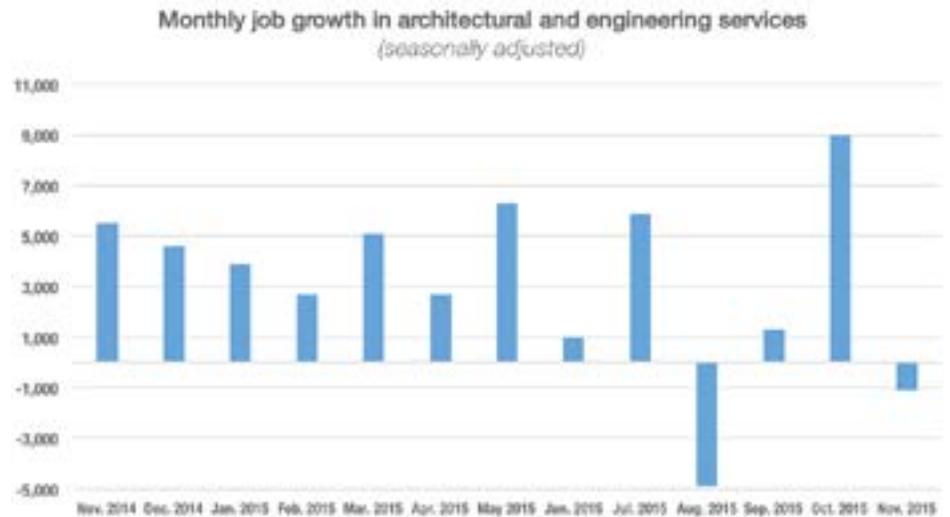
ARCHITECTURE ADDS 2,200 JOBS IN OCTOBER

Architectural and engineering services employed roughly 1.44 million people in the United States in November, according to the employment report released from the U.S. Bureau of Labor Statistics. Overall, this sector of the economy lost 1,100 jobs last month. The bureau also released data showing how smaller parts of this larger sector fared a month earlier, in October.

Architecture added 2,200 jobs in October, which is the strongest growth for the industry since June. The industry lost 900 jobs in September (revised from the 700 jobs that the bureau initially reported).

Landscape architecture added 100 jobs in October. That's better than September's loss of 300 jobs and equal or stronger growth than four of the other nine months of 2015. It's still nowhere near the 3,000 jobs the industry added in April.

Jobs in engineering and drafting services



increased by 5,300 in October, which is the strongest growth for the sector since November 2014.

Overall, these three industries — part of the larger architectural and engineering services sector — added 7,600 jobs in October.

ED FRIEDRICHS, from page 3

you can treat him or her as a collaborator in achieving excellence. It's up to your leadership to create an atmosphere that inspires all participants to be part of achieving excellence.

- Apply a management style that achieves financial success for the firm and for your client. As a leader, does your team understand the tasks they're being charged with and the time/fees they have to accomplish these tasks well? Do they feel that they share the responsibility to do so, or do they resent what you've thrown at them?
- Foster an environment that achieves a positive team esprit, happiness, and a sense of pride in accomplishment. Encourage ongoing professional learning and career development among team members.
- Develop a design approach that is driven by your client's needs, budget, and schedule, not just by your desire to win design recognition. These are not mutually exclusive goals. In fact, if you don't seek to achieve both objectives, you're not excelling. Share your design innovation and successes with others in the firm and within the profession and marketplace at large in order to bring visibility to your work and to advance the "state of the art" in the profession.
- Continually strive for technical innovation and excellence in the quality of your drawings and specifications, through continual learning about the best ways to communicate with contractors and subcontractors and through your knowledge of materials and systems and their performance in the real world.

All of these roles must be executed with skill, energy, and commitment, but in the real world, there is no single individual who can or wants to be accountable for high achievement in each of these realms. This is why we, at Gensler, had a "rule of two" (and sometimes three) leaders of a "studio," our basic business unit. These leaders were

driven by and capable of leading in one or more of these areas. Typically, one would be an "outside" person, really good at marketing and communication, listening well to and designing for a client. Another might be more of an "inside" person, focusing on technical excellence, creating a collaborative environment among team members and other stakeholders.

"Just because a person is made a principal, it doesn't mean they automatically know how to act upon the change in their role in the firm. What should they be held accountable for? What behavior should they display?"

Each leader should develop his or her own set of strengths and interests based on personal passion, ability, and energy, always searching for a partner or two with complementary strengths. As you develop your own specific strengths, take ownership of one or more of the roles I've described above. Accept responsibility for achieving excellence in that role. Identify your complementary partner(s). This is how the leaders of your firm will come to know that you are ready to become a principal.

If you're part of the leadership team, this is how you'll recognize those who should be promoted and how you'll define their role as a principal. ▀

EDWARD FRIEDRICHS, FAIA, FIIDA, is a Zweig Group consultant and former CEO and president of **Gensler**. Contact him at efriedrichs@zweiggroup.com.

Safety first

Firm leaders share how implementing new technology has helped them improve safety on their projects.

By Liisa Andreassen
Correspondent



Kyle Rendall,
Architect, KSS
Architects.

Whether you're working on a new project design or trying to refine your time management skills, it's likely that technology is playing a role. But, what about safety? Are project managers using technology to increase safety on job sites, too? The answer is a resounding "Yes."

At **KSS Architects** (Princeton, NJ), a 60-person firm, Architect Kyle Rendall says that, with the onset of ever-advancing and specialized technology, they have seen a great deal of increases in site safety improvement in addition to worker accountability.

SAY CHEESE. "Project sites remain complex; with myriad tasks and meticulous processes co-occurring, technological aids such as construction cameras can offer essential oversight throughout a project's life cycle," he says. "On-site cameras in the industry, originally intended to document progress throughout construction, have proven valuable for additional measures."

With the greater abundance and affordability of technology, contractors have become more aware of opportunities to proactively monitor a site for unsafe practices and hazardous conditions.

Owners can request camera installation for fundraising and insurance purposes, and insecure conditions or actions can be easily identified, documented, and remediated. In the event of on-site accidents and collapses, emergency responders can access footage revealing the approximate locations of potentially endangered workers, saving valuable time during rescue and recovery efforts.

The electronic availability of information for weekly site safety discussions and hazard communication safety data sheets are further examples of technological opportunities with beneficial yields.

"In our extensive on-site experiences for projects with a broad swath of scopes and budgets, safety is, and always will be, paramount, and these technological advances are quickly becoming vital tools in achieving it," Rendall says.

This new found benefit does not come without its challenges. One of the main ones has to do with sites and establishing proper camera placement and mounting to provide full coverage of construc-

tion activities.

"Site context and construction logistics can preclude this, decreasing footage value and leaving gaps in coverage," he adds. "Moreover, the quality of images and footage varies, and correlates directly with the cost of the service."

Provided that the average construction budget doesn't account for top-end systems, images can be captured at slow rates (for example, once every 30 minutes), limiting the effectiveness beyond overall tracking of construction progress.

"We hope that with increased use in the industry, more all-encompassing technology services will be included in project budgets and teams will have better access to these effective tools," he says.

STREAMLINING SAFETY; TRACKING TRENDS. At **O'Neal Inc.** (Greenville, SC), a 275-person industrial engineering and construction company, Jason Jones, director of virtual design and construction, says that one of the most widely adopted uses for technology in the area of safety is the use of digital safety checklists and task hazard analysis forms. These are pre-loaded on tablets with tools such as Autodesk BIM 360 Field and Bluebeam.

"By making the checklists cloud-hosted and available on field tablets, we are providing easier access to the checklists and significantly streamlining the reporting process," Jones says. "This allows our field professionals to perform many safety checks in less time, so we end up doing more. In turn, the reporting features allow our PMs and safety experts access to trending issues, so we can be proactive if we see a particular issue on the rise."

There are other safety tools that require the combined expertise of PMs, safety experts, superintendents, and virtual design and construction staff. For example, with Synchro or Autodesk Navisworks Manage, VDC staff is able map BIM model elements to the construction schedule and model in scaffolding, mast climbers, lifts, cranes, and site safety block-outs to identify no-fly zones at different phases of construction.

Project management and BIM technology is also used to keep track of schedules and inspections and to share documents and photos with subcontractors and vendors.

See SAFETY, page 8



SPOTLIGHT ON: Team



LOOKING FOR INSPIRATION?

Watch a video that outlines the Dunn Dashboard at: forconstructionpros.com/video/12097595/video-what-is-the-dunn-dashboard.

BIM + collaboration = big savings

Web-based BIM programs are saving firms on time and money, especially when used collaboratively by all project teams.

By Liisa Andreassen
Correspondent

Still trying to find a reason to start automating paper processes? How does \$10 million in savings sound? Digital technology helped **JE Dunn Construction** (Kansas City, MO), a 3,000 person firm, and **SERA Architects** (Portland, OR), a 100-person firm, keep this tidy sum in the bank when they applied a combination of custom and off-the-shelf collaboration software to put the design and construction teams and all subcontractors on an all-BIM process to complete a complex building in Portland, Oregon.

JOINT PROJECT, JOINT SAVINGS. The two companies collaborated on the building and design of the 650,000-square-foot Collaborative Life Sciences Building – a research center for the Oregon Health and Science University, Oregon State University, and Portland State University. Through the use of BIM and digital collaboration, they cut \$10 million in construction costs from the \$295 million budget.

CO Architects (Los Angeles, CA), a 100-person firm, served as the project's design architect and SERA was the executive architect. JE Dunn Construction was responsible for delivering the goals of each party.

BIM REDUCES RISK. The CLSB team had a complex design, and with complexity comes risk if a clear communication plan is not in place. Each of the project's subcontractors needed to

understand what was expected of them, and BIM helped to achieve that.

"The CLSB project team was a pioneer in its early adoption of digital document collaboration, web-based BIM collaboration, and field technology," says John Jacobs, chief information officer at JE Dunn Construction.

And, while BIM programs are not new, as they get more sophisticated, they're gaining more ground. Most large-scale architectural projects involve some combination of BIM modeling and CAD, but it's rare to see more than 100 team members working exclusively from the same set of BIM plans.

"CLSB was one of the first fully collaborative BIM efforts where all key players were involved in a process that really enhanced the overall value these technologies added to the project team," says Trent Nichols, vice president and national BIM director for JE Dunn Construction.

The primary BIM programs used on the building were Autodesk, Revit, Autodesk Navisworks, and SketchUp.

A separate team was responsible for designing each mechanical system – plumbing, electrical, and ventilation systems. The clash-detection feature of the 3-D BIM model identified design conflicts – things like a pipe designed to intersect with a duct – before construction began, when changes were relatively easy. The plumbing teams were then able to change their

design so the pipe avoided the duct.

Modifications were reflected in real time to every design team involved. Instead of the plumbing design team posting their changed document, and each of the 27 other teams needing to do the same to their own copies of the plumbing layouts, the collaboration network updated everything automatically and simultaneously.

DIGITAL DOCUMENT CONTROL. To make communication more efficient among all these entities, SERA Architects and JE Dunn Construction used an all-digital documentation process. They implemented Bluebeam, a collaborative editing and file-sharing platform, to link all of the construction documents so changes were reflected across the board. Smartsheet, a cloud-based spreadsheet solution, also helped the teams keep track of documents, allowed multiple users simultaneous access and editing, and prevented version-control problems.

“BIM programs are not new, as they get more sophisticated, they’re gaining more ground.”

Daily document control on a project this size is no easy task. To control and coordinate CLSB plan updates, all team members used a synchronized set of project drawings that were electronically updated in Bluebeam and synchronized from the Dunn Dashboard – a proprietary project website and clearinghouse for all project information.

The Dunn Dashboard gave non-architect users easy access to BIM files. JE Dunn estimated that it would have taken 127,000 hours to post and draw documents manually on this project. At a billable rate of \$79 per hour, it would have added an astounding \$10,058,017 in paper-related costs.

On top of that savings, one subcontractor used Point Layout software, an Autodesk program, and Robotic Total Station, an automated tool by Trimble, to layout and install 55,000 hangers for the building’s mechanical, engineering, and plumbing systems. This saved another \$1 million on the project since the company didn’t have to drill from a lift, insert the hangers, and then have them individually inspected.

The all-digital design and documentation process accelerated coordination and construction.

“It’s hard to determine just how much time would have been added to the project if these processes hadn’t been as streamlined, but it’s safe to say we saved many months,” Jacobs says. “It’s also difficult to quantify soft cost savings due to inefficiencies that are eliminated or improved through technology.” ▀

Technology fuels team

Technology proves to be a benefit as well as a challenge, that eventually brings the team closer together.

By Liisa Andreassen
Correspondent

How do project managers foster teamwork during a project? Do they turn to technology? Most do, but it does offer it’s challenges.

TECHNOLOGY AND COMMUNICATION At **Process Plus** (Cincinnati, OH), a 120-person architecture and engineering firm, project managers rely on technology for many things.

Sharon Petko-Bunney outlines a few:

- Skype has replaced many telephone conferences, because it’s often difficult to get everyone on the same page and it can also be difficult to hear during traditional phone conferences. Seeing people really helps.
- ASANA is a web and mobile application designed to help teams track their work.
- Go-To Meeting helps to implement HD video conferencing.

Rebecca Sowma, also a project manager for Process Plus, says that clients seem to like the Skype meetings when the video is enabled.

“We can present documents and change them in real time. We do model walk-throughs that help clients visualize their projects, and we have had positive feedback about all this,” she says.

These technologies help to create an atmosphere that drives team work and collaboration.

TECHNOLOGY POSES BENEFITS AND CHALLENGES Andrew Bennett, regional vice president of **Pennoni Associates Inc.** (Philadelphia, PA), an engineering and consulting firm with 1,145 employees, says that their managers use a variety of software and technology to enable collaboration. One of the most useful and popular is the Lync system, which allows them to communicate while sharing screens. They have also used several other management software programs that provide information sharing but have not settled on a standard.

“Technology is a benefit and a challenge,” Bennett says. “One significant benefit of technology is the almost real-time access to accounting information (this should enable our PMs to more effectively manage their projects), but as stated, both a benefit and a challenge. While constant software evolution provides greater and faster information sharing capabilities, the benefit comes with a cost.”

How so? Bennett says that software improvements require staff time for training and adaption, especially if the company

See TEAMWORK, page 8

SAFETY, from page 5

“All this ensures that safety staff is on the same page as our PMs and subcontractors,” Chris Campbell, safety director for O’Neal, says. “Technology has also helped provide better access to safety resources and materials. For example, our PMs now have easier access to safety training materials. We’ve also been using apps such as noise dosimeters, NOAA weather apps, the Red Cross First Aid app, and several others. One specific example is where we’ve used the NOAA weather app and radio to monitor lightening and high winds near jobs sites.”

Campbell adds that they have also used BIM technology to help their engineers to identify and remove hazards in the model, long before there is a hazard on the job-site.

And, while they’ve had some challenges, most pertain to Internet access at remote job sites, syncing updates and bandwidth limits.

PROACTIVITY REAPS REWARDS. Danelle Prezioso, vice president



TEAMWORK, from page 7

determines a switch to another software or technology is required. Given the pace of technology, this is an ever-increasing event. In addition, the amount of overhead dedicated to technology has increased significantly over the past 15 years.

“Our ability to realize technology benefits is mixed. Certainly, we have become adept on a number of technological fronts, (we are scientists, after all), but the pace of change limits the ability to maximize competency on every platform for all employees. Therefore, some deviation from maximum benefit has to be understood and accepted,” he says. ▀

EIGHT BUSINESS COLLABORATION APPS

Business News Daily recommends the following eight apps to improve your collaboration:

- **Google Drive** – Android & iOS. This app lets you tap into the power of Google Docs to collaboratively create documents, spreadsheets and presentations from anywhere. It’s compatible with Microsoft Office, so employees can seamlessly transition between desktop computers and mobile devices. Using the app, team members can also edit files offline from anywhere. When they reconnect, changes and edits will be synced across all devices.
- **iWork** – iOS only. If your team prefers iOS devices, iWork is a good best bet. The apps are fully integrated with Apple’s iCloud online storage platform, so team members can access and edit documents from any Web-connected device and edit collaboratively in real time.
- **Dropbox** – Android & iOS. For teams that need to collaborate, this app allows all members to access the most up-to-date version of those files from anywhere. Just have each member of your team install the app on his or her desktop and mobile device. Once that’s done, their files will stay synced across all devices. Dropbox also functions as a reliable cloud backup service.
- **Evernote** – Android, iOS & Windows Phone. Among the app’s premium features is the ability to create “notebooks,” which can be shared with individuals or the entire organization. Unlike personal notebooks, which can only be viewed and edited by the creator, shared notebooks can still be accessed long after the creator leaves the company. You can also use it for project planning and idea generation.
- **Huddle** – Android & iOS. This is a business collaboration suite designed to help teams share files and plan projects. View, edit and annotate a document, and then save the edited version back to Huddle when you’re done so every team member can access it. When you’re editing Huddle will automatically retrieve related documents.
- **Cisco WebEx** – Android, iPhone & Windows Phone. Videoconferencing lets you collaborate with team members face-to-face. Users can also share documents, spreadsheets and PDFs for collaborative editing. And the service includes an interactive whiteboard feature, letting users share notes, draw charts and more.
- **Skype Premium** – Android, iOS & Windows Phone. For business users on a budget, Skype is a decent, affordable videoconferencing tool. Video chatting with one other person is free, but upgrading to Skype Premium adds a few important features, such as group video calling with up to 10 participants. Paying for a premium account also opens up group screen sharing, so you and your colleagues can share documents, spreadsheets and presentations and work together.
- **Google Calendar** – Android & iOS. Creating a shared calendar for your team can help everyone keep track of deadlines and important dates. There is no need to set special reminders for meetings or conference calls; Google Calendar alerts you automatically and even sends a reminder to your Gmail account.

OPINION



Cash flow, year-end, and predictability

Revenue forecasts, backlog reports, and historical information are among the essential components your firm needs to create a predictable cash flow model.



Ted
Maziejka

FINANCIAL FITNESS

As we get closer to the end of 2015, your firm is probably almost ready to project firm performance, review the year-end, insure that taxes are covered, and hopefully, if your firm has had a great year, determine the year-end bonus for staff.

In most cases, this is a less than predictable event. Many of the firms that we consult with have turned to us to assist in making their cash flow reviews more predictable, and less of a challenge to review where the firm is headed.

Is your firm still relying on the daily cash inflow report? Many firms' senior leadership depends on the daily report in lieu of a predictable cash flow modeling. They will claim that this daily report gives them a gut feel of where the cash position of the firm is.

When they review daily cash reporting, it can be compared to riding a bicycle on a highway – with your head down, you only see what is ahead of your tire. You don't know that a semi has stopped in front of you, and then you're splat on the back of the rig.

Predictive cash flow allows you to ride the same bicycle down the road, and with a 12-week view of the firm's cash position, you can see clearly ahead and can compensate for unforeseen roadblocks. A predictable cash flow model relies on a number of factors to forecast accurate and predictable inflows of cash.

The following are critical elements of that predictable look:

“This predictive look, if applied with rigor, would allow for year-end cash planning and decisions to be addressed as an ongoing exercise. The dynamic elements involved with running a professional service practice demands a continuous review of the cash flow model. Why wait until the last quarter of the year when you can know the flow routinely during the year?”

■ **Revenue forecasting.** With accurate resource planning, accurate revenue forecasts are a natural result of the work effort to plan the projects and forecast revenue.

In the absence of reliable data, revenue forecasting is a function of the project manager's and the financial team's review of the projects. The generation of invoices and the payment by the client within contract terms are critical components to cash flow forecasts.

See TED MAZIEJKA, page 10



BUSINESS NEWS

COLORADO STATE UNIVERSITY COMPLETES NEW GREEN PARKING INITIATIVE Colorado State University (Fort Collins, CO) announced the completion of its latest green parking initiative as part of its vision to remain the greenest university in the U.S. The installation of a sensor-based parking guidance system from INDECT USA enhances the LEED certified garage, which has also been designated a Green Garage Demonstrator by the Green Parking Council.

"CSU is committed to sustainability and the INDECT sensor program will make a vital contribution to our efforts to make our campus greener," said Doug Mayhew, associate director of parking and transportation for the university. "By guiding parkers directly to open spaces, the parking guidance system minimizes the amount of time spent searching for parking. The program will also dramatically decrease the amount of vehicle exhaust emitted in the structure, and reduce the amount of unnecessary fuel wastage."

Colorado State University has been named the 2015 America's Greenest University by BestColleges.com and is the first school in the world to receive the platinum star rating by AASHE STARS program.

The new parking guidance system features the installation of parking sensors in each of the 645 covered spaces and monitors all 870 spaces in the university's only parking structure. A space indicator light is installed on a dropper at the front of the parking space offering drivers a clear view of where open spaces can be found and what type of parking is permitted in an individual space. Different colors indicate each space's status and user group: green for available, red for occupied, blue for handicapped parking, and purple for electric vehicle charging stations. The lights are clearly visible to drivers when they enter each level so they can quickly determine if a space is available on that floor. A monument style sign is installed at each of the garage entries to advise customers of real time parking availability as they approach the garage. The sensors collect data about length of stay, occupancy and usage for each of the different user groups at the garage, which the university will use to enhance its parking policies and procedures.

TED MAZIEJKA, from page 9

Revenue forecasts have to be reviewed in light of your client contract terms, as planning when the work will be accomplished can be dramatically different than when your firm invoices and collects their accounts receivable.

- **The backlog report.** How well does your firm incorporate a monthly review of the backlog of contract values remaining?

Are those values incorporated into the cash flow modeling, as they represent the most accurate forecast of revenue and ultimately cash inflows of the firm. The more accurate the backlog reporting due to project managers utilizing your system and planning the projects, the greater predictability the firm will experience on its review of cash flow modeling.

- **Historical information.** The accuracy of cash flow modeling is typically dependent on what the client's payment cycles have been in the past. Although this assists in driving the cash flow model, past performance with current economic conditions should not be a predictor of future performance.

Clients who have been used to paying outside of contract terms have to be gently brought around to the idea that the past ways and the costs of capital don't allow for protracted payments.

The more the firm can move clients to adhere to contract terms, the more predictable the ability of your financial staff and project managers to accurately assess how cash will flow into the firm.

If the mix of clients has changed over the last few years, consider looking at what the new payment streams are. A shift from private to public sector, and the reverse, could have impacts to the way your firm models their cash flow. Changes in the types of clients, sub to prime agreements, and the terms

HONORS & AWARDS

CONSTRUCTION ESTIMATING SOFTWARE DEVELOPER AWARDS \$25K IN SCHOLARSHIPS Construction estimating software developer **HCSS** (Sugar Land, TX) has awarded \$25,000 in scholarships in its Construction Intern Awards. The firm awarded a total of six scholarships to interns in construction-related fields. The grand prize winner and recipient of a \$10,000 scholarship was Chase Ekstam, who is interning with **APAC-Missouri** and is a student at Missouri State University majoring in construction management.

"During my involvements with APAC as an intern, I'm reminded daily of how a good, solid work ethic and a want to learn something new every day can fulfill many positive aspects in my life," said Chase. "I have been able to acquire a skillset that is invaluable for myself in my future career and have had the opportunity to work side-by-side with some of the most reputable men and women in the industry."

"Everybody that Chase has interacted with inside and outside of our company has high praise for Chase's ability to grasp the safety and quality culture of our company, the ideas and theories behind what needs to happen to make the work flow, and the ability to work together as a team to get the tasks and projects done," said Doug Fronick, estimating manager and Ekstam's supervisor at APAC-Missouri.

of your contracts can have large impacts on the way your firm predicts cash flow.

A critical component to this review is the transparency of contract information flowing between the project management team and the financial management team. The more everyone is accessing the same information, the more accurate the predictable cash flow model.

- **Expense review-payroll.** The largest event on your firm's cash flow model, and also the largest concern of the principals and financial staff to insure coverage, payroll is the largest line item to cover in your predictable cash flow model.
- **Expense review-fixed and variable costs.** Fixed expenses like rent, lease payments, insurance payments, etc. fall into this category. The firm's line of credit repayment might also be captured here, or it may have its own section on the cash flow model.

Variable expenses can be estimated and should align to the firm's budget that was planned at the beginning of the year.

- **Predictability.** By aligning the information into a 12 week model and reviewing weekly, the firm can move its decision making predictively out into the future by tuning the information that is in front of them.

This predictive look, if applied with rigor, would allow for year-end cash planning and decisions to be addressed as an ongoing exercise. The dynamic elements involved with running a professional service practice demands a continuous review of the cash flow model. Why wait until the last quarter of the year when you can know the flow routinely during the year? ▀

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PROFILE



Sandy Hook rises again

Devastated by 2012 shooting, Newtown community eager for new school after shooting but still wounded and weary of the spotlight.

By Richard Massey
Correspondent

A new Sandy Hook elementary school is under construction in Newtown, Connecticut, and architecture firm **Svigals + Partners LLP** (New Haven, CT) took the pulse of the community before designing the structure that, for many, represents a new beginning for the town that endured a senseless tragedy.

Funded through a \$50 million grant from the state of Connecticut, the Sandy Hook project started in September 2013, when Svigals + Partners and builder Consigli Construction Co. Inc. were chosen. Shortly thereafter, the old 1956 school was demolished. Construction began in spring 2015 and is expected to be complete and in use for the 2016-2017 school year.

Svigals + Partners, with 20 years of experience in school construction and consensus building, was up for the task.

“We came in with the attitude that we didn’t know what was needed, because truly we didn’t,” says Julia McFadden, an associate principal with Svigals +

Partners. “It’s assumed that this is a universal ‘new beginning’ for the community – which isn’t a feeling that is embraced by all. For some, the project is a painful reminder. Therefore, we had to not make assumptions as much as possible, listen a lot, and focus all our efforts on the next generations of children who will go to this school.

“Discussions were often on how children will best be inspired in the new school, what will nurture them and give them a sense of safety and security, engage their imagination and connect them to the incredible natural environment within which the school site exists – rich with biodiversity, wetlands, and forested areas.”

The project was necessitated by a crime that shocked the nation. On Dec. 12, 2012, 20-year-old Adam Lanza stormed the Sandy Hook school and fatally shot 20 children and six adult staff. Before arriving at the school, Lanza shot and killed his mother. As first responders arrived, Lanza committed suicide by shooting himself in the head.

The Sandy Hook project manager is Diversified Project Management, but the entire program is

See SANDY HOOK, page 12



HONORS & AWARDS

BALFOUR BEATTY HONORS ERIC GARCIA WITH 2015 ROBERT C. VAN CLEAVE RELENTLESS ALLY AWARD Balfour Beatty Construction

(Orlando, FL) has named Eric Garcia as its 2015 Relentless Ally – the highest honor the company bestows upon an employee. Created to honor the legacy of retired chairman and CEO Robert C. Van Cleave, Balfour Beatty’s Relentless Ally Award is presented to the individual who most embodies one or more pillars of the company’s creed – “Zero Harm, Zero Waste, Client Advocacy and Employee Inspiration.” Thereby, this individual truly lives the company’s purpose by definition: “To be a Relentless Ally for the success of each and every dream that we are entrusted to build.”

As a senior loss prevention manager in Balfour Beatty’s Orlando office, Garcia’s key priority is to lead the company’s zero-harm efforts on some of its most complicated projects. However, Garcia has been recognized by his clients and colleagues for accomplishments that surpass his job description by touching all four of Balfour Beatty’s creed pillars. In essence, the Relentless Ally Award recognizes the heroes at Balfour Beatty who define and deliver service excellence.

“Eric Garcia represents everything we look for in an employee who epitomizes the Relentless Ally purpose,” said Sean DeMartino, president of Balfour Beatty’s Florida Division. “He consistently exhibits a sound work ethic,

a client focus, solutions-oriented ideas, leadership by example, superior technical proficiency, and consistent follow-through – all in addition to his day job of leading our efforts around zero harm on some of the most complicated projects in our Florida business. He undoubtedly represents each of our four creed pillars at the highest level and is a proven Relentless Ally for our clients, business partners, and his fellow employees.”

When it comes to Balfour Beatty’s commitment to accepting nothing less than zero harm for anyone who comes into contact with its work, Garcia led the charge that resulted in more than 1 million man-hours without a lost-time incident on two projects. Garcia exceeds industry standards because he takes his role personally and establishes trust with his workforce through a servant leadership approach centered on his team’s best interests.

“Eric is so effective at his job because of how he interacts with the workforce,” said Steve Smithgall, senior vice president of national operations and safety, Balfour Beatty Construction. “When he approaches people, they can tell he is passionate about his job and wants them to be and act safe because he genuinely cares about their wellbeing. He isn’t just enforcing rules, he goes that extra step to warn them about the risks and hazards our rules are aimed at preventing. He also takes the time to acknowledge them for doing things right.”

MOMA PS1 ANNOUNCES ITS 2016 YOUNG ARCHITECTS PROGRAM SHORTLIST

In its 17th year running, the Long Island City, New York, satellite location for the Museum of Modern Art has released a shortlist for its Young Architects Program. Created as an opportunity for budding architects to flex their design chops, the program asks competitors to create a temporary, outdoor installation that will be constructed on the public rooftop of MoMA PS1. The art institution asks for designers to develop a construction that will offer shade, seating, and water for attendees of its summertime live concert series, “Warm Up,” while addressing environmental issues.

This year’s hopefuls are split between the U.S. and Mexico. The American designers include **First Office**, led by Andrew Atwood and Anna Neimark in Los Angeles; **Ultramoderne**, which includes Aaron Forrester and Yasmine Vobis, located in Providence, Rhode Island; and **Cobalt Office**, by Andrew Colopy and Robert Booth in Houston. The Mexican participants are **Escobedo + Solis**, with Lazbent Pavel Escobedo Amaral and Andres Soliz Paz, in Mexico City; and Frida Escobedo, based in Azares. The winner will be announced in early 2016.

Last year, the panelists chose COSMO, the bespoke installation designed by Spanish architect Andrés Jaque. The quadragenarian architect heads international firm Office for Political Innovation and teaches at Columbia University.

SANDY HOOK, from page 11

under the oversight of the Public Building and Site Commission of the Town of Newport. The K-4 school, with a capacity for more than 500 kids, will be about 80,000 square feet and designed to meet LEED Gold standards. The only element of the original structure that will remain is the flagpole. The school will exist in a completely different footprint, with no public memorial on the campus.

The final design of the two-story school incorporated the input from school officials, teachers, parents, and community leaders. Features include an undulating wood façade, scenic views of nature and of the city, rain gardens, classroom wings, a soaring lobby, and a central courtyard. The school will also be equipped with new security standards developed by Connecticut and the U.S. Department of Homeland Security.

The planning process was exhaustive, but worth the effort.

“Everyone that participated in our advisory group was incredibly invested and concerned about the success of the project, and they were willing to go the extra miles with us to explore and find the best solutions,” McFadden says. “The interest in this project was the greatest we have ever encountered. The mood was hopeful that we could capture the spirit of who they are: Sandy Hook is a distinct area of Newtown with lots of history and pride. Sandy Hook School

provided structure to that identity.”

The project will include Svigals’ Kids Build! program, which entails the education of students throughout the design and construction process. Svigals has employed the program at other school projects, including those in New Haven’s \$1.7-billion school construction program.

One of the key challenges of Sandy Hook, McFadden says, was balancing new security concerns with the firm’s desire to design a welcoming and inspiring environment for learning. That was accomplished with the open lobby, the series of courtyards, and the curvature of the front façade, among other features. And it was the curvature that perhaps posed the biggest design problem, McFadden says. The steel structure had to be calibrated to the curve, and had to accommodate the layout inside.

With Consigli Construction anchoring the worksite, the project is expected to open on schedule. And, though the school is expected to welcome students back with open arms, there probably won’t be too much fanfare, if any at all.

“Certainly, the fact that national media is interested in the project was new for us and for the town and the school district,” McFadden explains. “The town is weary of the attention, and this is hard for us to balance against the backdrop of a community that doesn’t want the notoriety.” ■