THE ZWEIG LETTER

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FINANCE / HR SUPPLEMENTS
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October 5, 2015, Issue 1122

Getting your firm ready to sell

Taking the time to get these 8 items in order might make all the difference when seeking a buyer for your business.

"The fact is an external sale is probably the best way to get the highest value for your firm AND might be the best way to ensure its survival and provide ongoing opportunities for your people."

Mark Zweig

EDITORIAL

A lot of us don't want to plan for it. We don't even want to think about it. But the fact is an external sale is probably the best way to get the highest value for your firm **AND** might be the best way to ensure its survival and provide ongoing opportunities for your people.

So, let's say you think an external sale may be in your future: What can you do to make your firm more attractive to buyers? Here are my thoughts:

1) **Have a good business plan.** It helps build potential buyers' confidence when they see you have your act together in the form of a solid business plan. What is your mission and vision? What are your strategies and goals? And what specific actions will you take to accomplish them? These questions and more should be answered, and you should be willing to share your plan with potential buyers.

2) **Be a growing firm.** When you have a history of growth, your buyers will have projections for continuing growth. That growth will result in higher EBIT (earnings before interest and taxes – and bonuses) projections and have a positive impact on your value.

3) **Be profitable.** Every buyer looks at multiples of EBIT. To a great extent, the more profitable you are, the higher your valuation will be. And the buyers will have a greater confidence that your system works.

4) **Have a strong second tier of management.** Anyone who is considering buying your

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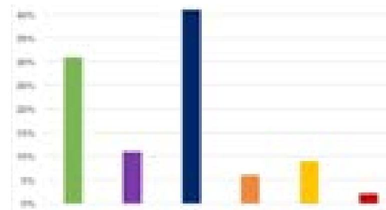
MORE COLUMNS

TRENDLINES

Firms' billing cycles



In Zweig Group's *2015 Fee & Billing Survey of Architecture, Engineering & Environmental Consulting Firms*, 41 percent of respondents said they bill **at the same time every month**, while 31 percent said they bill **at project completion**. Another 11 percent reported adhering to **a preset payment schedule**, followed by 9 percent who bill **at project milestone/deliverable**, 6 percent who bill **every four weeks**, and 2 percent who bill **multiple times per month or continuously**. — *Vivian Cummings, research analyst assistant.*

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TRANSACTIONS

WEIDLINGER ASSOCIATES AND THORNTON TOMASETTI MERGE **Thornton Tomasetti Inc.** and **Weidlinger Associates Inc.**, two of the world's most respected engineering firms, have merged. The deal creates a leader in engineering innovation covering a broad range of investigation, analysis, and design services. The combined firm will have 1,200 employees operating in 34 cities internationally. Terms of the deal were not disclosed.

The new firm will operate under the Thornton Tomasetti name and will remain headquartered in New York City, with offices at the current 51 Madison Ave. and 40 Wall St. locations. Three practices continue to be marketed with the Weidlinger brand where it carries strong industry recognition: Weidlinger Applied Science, Weidlinger Protective Design, and Weidlinger Transportation. The combined firm's 10 practices allow it to deliver a broader range and higher level of service to its clients. It will also be better positioned to capitalize on its geographic reach and diverse talent pool, while providing growth opportunities for its employees.

Thomas Scarangello continues as chairman and CEO of the combined companies, with Raymond Daddazio joining Robert DeScenza as co-president. Daddazio and two other Weidlinger board members, Grant McCullagh and Tod Rittenhouse, join the 11-person Thornton Tomasetti board of directors.

"Combining our firms brings together two highly respected and recognized talent pools, creating significantly greater potential for growth and innovation than either firm could achieve alone," Scarangello said. "Both our cultures have a 'one firm' approach, bringing the best qualified team to bear on any challenge presented by any client. Our more diverse merged expertise allows us to address a wider range of client needs, while offering enhanced breadth and depth of services and extended geographic reach."

"Just as important as our complementary suite of services and geographic footprints is our compatible cultures," Daddazio said. "While no two firms are exactly alike, ours bear many similarities – including the drive for innovation, long-standing entrepreneurial spirits, and shared values in philanthropy, employee enrichment, embracing challenges, and a desire to make lasting contributions. We're also different enough in ways that our combination will inspire us to think and work in new and exciting ways."

Thornton Tomasetti benefits from the well-established Weidlinger practices that add technical depth, new geographic presence, and market advantage to the company's existing practices and markets. In addition, Weidlinger brings long-standing ties as a government contractor in the U.S. and U.K. Weidlinger benefits from expanding its geographic reach, market access and project diversity, and access to a robust platform for innovation and growth.

Weidlinger's Applied Science and R&D development teams complement Thornton Tomasetti's CORE studio and R&D initiatives, and accelerate the firm's ability to innovate. The Applied Science team also deepens Thornton Tomasetti's analytical offerings across all its design and forensic services.

To incubate, develop, and market product and service innovation, the firm will establish an R&D holding company.

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company is more interested in the people who work for you than they are you. Once you sell your company, odds are you will either be less motivated or out. So the people who work for you are extremely critical to a buyer!

5) **Have a named successor.** Who specifically will take over your business? Who is ready to run it? It is crucial to you and to any buyer that someone is ready to assume the top job.

6) **Clean up your books.** Get all your personal stuff out of the company. If your office is leased from you, are you overcharging for it? Do you have a condo or boat on the books that the company is paying for? Is Mom getting a paycheck but not showing up for work? Get all this stuff off the books; buyers don't want to see it.

7) **Have good accounting.** This is so critical. We work for buyers and find sellers who can't even give us a balance sheet or any kind of profit and loss statement that wasn't scratched together in a spreadsheet. Audited financials are best. Reviewed are second-best. Accountant-prepared compilations are third-best.

8) **Clean up your office.** Don't have a dump! Buyers will surely want to see your workplace. Clean the carpet. Empty the spare offices of the old furniture piled up in there. Toss the old magazines in the lobby. Change the light bulbs. Clean the kitchen.

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

THE ZWEIG LETTER

38 West Trenton Blvd., Suite 101
Fayetteville, AR 72701

Mark Zweig | Publisher
mzweig@zweiggroup.com

Andrea Bennett | Managing Editor
abennett@zweiggroup.com

Christina Zweig | Contributing Editor
christinaz@zweiggroup.com

Sara Parkman | Editor
sparkman@zweiggroup.com

Megan Halbert | Design Assistant
mhalbert@zweiggroup.com

Liisa Andreassen | Correspondent
lsullivan@zweiggroup.com

Richard Massey | Correspondent
rmassey@zweiggroup.com

Tel: 800-466-6275
Fax: 800-842-1560
E-mail: info@zweiggroup.com
Online: www.thezweigletter.com
Twitter: twitter.com/zweigletter
Blog: blog.zweiggroup.com

Published continuously since 1992 by Zweig Group, Fayetteville, Arkansas, USA. ISSN 1068-1310.

Issued weekly (48 issues/yr.). $475 for one-year subscription, $775 for two-year subscription.

Article reprints: For high-quality reprints, including Eprints and NXTprints, please contact The YGS Group at 717-399-1900, ext. 139, or e-mail TheZweigLetter@TheYGSGroup.com.

OPINION

How well is your financial staff utilized?

Integrating financial staff with other parts of the firm is beneficial for everyone; here are some of the best ways to use them to their fullest potential.

Ted Maziejka

FINANCIAL FITNESS

Working with numerous architectural, engineering, and planning firms, we encounter some extraordinary financial and accounting staff. As a strong and synergistic compliment to well run firms, talented financial and accounting staff are able to provide extensive resources to the technical staff.

Their expertise as the keepers of the mission-critical financial software, process, and procedures that help keep the financial side of the practice running smoothly are sometimes thwarted by a lack of adherence to the very policies that senior leadership puts in place to allow the firm, principals, and project managers to have access to information on projects.

One of the first places that the financial staff should be integrated is at the kick-off meeting with the client. Introduction of the financial staff to the client allows for the technical staff to transition part of the financial relationship. There should be a line item on the agenda that reviews contract financial terms and allows the technical staff to receive the client accounting staff's names, email addresses, and phone numbers.

> "One of the first places that the financial staff should be integrated is at the kick-off meeting with the client."

Once all of these staff are aligned, all requirements of the contract related to financial terms, invoice review, and other facets of the financial side of the project can be sorted out between the financial staff. With the project matrix of responsibility in place with firm accounting staff aligned to client accounting staff, the firm's PM and client PM can focus on the project, and the firm's principal in charge can focus on the relationship with the client's principal.

As the project matures, the firm's accounting staff becomes invaluable to the project team as their interaction with the client's accounting staff gains trust and allows for a smooth transition of all the relevant financial information with the client from month to month. Invoice processing will become a smooth monthly transition and with their relationship in place, many issues that might be problematic are headed off due to these folks being connected at the very start of the project.

> "As the project matures, the firm's accounting staff becomes invaluable to the project team as their interaction with the client's accounting staff gains trust and allows for a smooth transition of all the relevant financial information with the client from month to month."

The firm should also insure that all project financial correspondence flows through accounting and not the project team. All sub-consultant agreements crafted by the project team should be directing all invoices to flow to accounting and not the project manager. This is critical to maintain the correct revenue forecasting to all project costs. Once a contract with sub-consultants is in place, the accounting relationship insures that the sub-consultant invoice is always charged correctly to the project within the month, or an accrual is made to post the expense to the project, allowing the proper assignment of cost in the month of the expense.

By insuring the timely entry of project information, the firm's accounting staff can provide more accurate and updated info-metrics on the project. With the firm's senior leadership creating the

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FIRMS ON THE MOVE

MEA RELOCATES **Marino Engineering Associates Inc.**, a geotechnical and subsidence engineering firm, has relocated to St. Louis. The move stems from MEA's growth over the past years and will enable the company to better serve its clients in the Midwest and nationally.

According to President Gennaro G. Marino, "It was a great time for us to relocate to St. Louis. Our new location near Forest Park allows us to maintain closer contact with our clients in Missouri and in southern Illinois. In addition, we are more accessible to our clients located across the U.S."

The firm, formerly GGMEC, was founded by Marino, an award winning geotechnical engineer, in 1980 in Champaign, Illinois.

BUSINESS NEWS

STUDY SHOWS GREEN CONSTRUCTION IS MAJOR U.S. ECONOMIC DRIVER The green building sector is outpacing overall construction growth in the U.S. and will account for more than 2.3 million American jobs this year, according to a new U.S. Green Building Council study from Booz Allen Hamilton.

The "2015 Green Building Economic Impact Study," released by USGBC and prepared by Booz Allen, finds the green building industry contributes more than $134.3 billion in labor income to working Americans. The study also found that green construction's growth rate is rapidly outpacing that of conventional construction and will continue to rise.

By 2018, the study finds, green construction will account for more than 3.3 million U.S. jobs – more than one-third of the entire U.S. construction sector – and generate $190.3 billion in labor earnings. The industry's direct contribution to U.S. Gross Domestic Product is also expected to reach $303.5 billion from 2015-2018.

"Green building is playing a massive role in the U.S. construction sector, the clean and efficient energy sector and the U.S. economy as a whole," said Rick Fedrizzi, CEO and founding chair of USGBC. "More than 2.3 million U.S. workers are taking home $134 billion annually in large part because of green building programs like LEED. Demand for green building will only continue to grow as individuals, businesses, and institutions continue to prioritize sustainable approaches to the design, construction, and operations of our built environment."

The new USGBC analysis also explores the multifaceted economic contribution of green construction to the U.S. economy and individual U.S. states, quantifying the economic impact of green building and LEED.

"Our research shows that green building has created millions of jobs and contributed hundreds of billions of dollars to the U.S. economy, with the construction of LEED-certified buildings accounting for about 40 percent of green construction's overall contribution to GDP in 2015," said David Erne, a senior associate at Booz Allen. "This industry is certainly on the rise, and aggressive growth in the green building sector is anticipated over the next four years."

In addition to national jobs, GDP, and labor earnings from green building, the study projects significant growth in green building's contribution to individual states' tax contributions and environmental asset indicators at both the national and state levels.

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proper awareness of why timely and accurate time card and expense entry is critical to project success, and being shining examples of this to all the staff in the firm, the financial staff can go from babysitting the staff to providing much more accurate and effective information to the project team.

For firms that embrace a mission-critical software like Deltek Vision, Ajera, BST, Clearview, and Project Analyzer for resource planning, the financial staff's value continues to increase as they shepherd proper planning of fees, hours, staff use, and project success. The firm's backlog of work and pipeline are critical components to allowing senior leadership to plan the firm's direction.

Another benefit of the financial staff being integrated at this level is that the financial staff can be leveraged against the project team's PM and PIC to work effectively with preparing the resource planning that can impact manpower forecasts, project schedules, and the overall review of the project budget.

This places a much lower billing rate of the financial staff for these tasks, allowing the PM and PIC to apply their billing rates to the management and maintenance of the project and the client. The effective leveraging of the staff can make large differences in the profit picture of your firm's project performance!

The final place that the financial staff can really excel and support the project teams and the firm is in the area of cash management. If the above integrations have occurred,

"The final place that the financial staff can really excel and support the project teams and the firm is in the area of cash management."

the financial staff are not only tuned into the client and have great information that can be utilized from a predictive perspective, the integration of the resource planning drives more accurate revenue forecasting, which in turn allows your financial system to generate much more accurate forecasts of how well cash collections and cash flow are coming into the firm.

This allows senior leadership to take a broader and predictive view, looking out months instead of days, being able to manage staff needs, capital expenditures, line of credit management, and the financial impacts driven from more accurate data. The financial staff being much closer to this data can also begin to spot trends as the firm's client mix shifts from not just a revenue-planning perspective but also a cash flow perspective. Periodic reviews of the firm's mix of clients and changes to contract payment terms will allow for a way to better predict financial performance.

As a wise senior surveying professional imparted on me: "Our role is to seek to insure that each individual in the firm is being used for their highest and best purpose."

Is your firm utilizing your financial staff to their highest and best purpose?

TED MAZIEJKA is a financial and management consultant for Zweig Group. Contact him at tmaziejka@zweiggroup.com.

Top tips for preparing an annual budget

Effective budgeters point to goals, terms, assumptions, and a few basic questions as the keys to success when prepping for the new year.

By LIISA ANDREASSEN
Correspondent

When prepping your annual budget, think of it in terms of a roadmap. You have goals that you need to meet and a strategic plan to get there. Your budget should help you to achieve those goals while staying within the parameters of the strategic plan. So, where do you begin?

Harvard Business Review has a book titled *Finance Basics* that breaks it down. The book suggests that you start by listing three to five goals that you hope to achieve during this budget period. Make sure that your goals line up with strategic priorities. Here's an example of three goals:

1) Increase gross sales by 5 percent.

2) Decrease administrative costs as a percentage of revenue by three points.

3) Reduce inventories by 2 percent by the end of the fiscal year.

Now what? Figure out how you'll achieve those goals: How can you generate more revenue? Where can you cut costs or reduce inventories?

Some other issues to consider when planning your budget include:

- **Term.** Is the budget just for this year, or is it for the next five years? Most budgets apply only to the upcoming year and are reviewed every month or every quarter.

- **Assumptions.** At its simplest, a budget creates projections by adding assumptions to current data. Look hard at the assumptions you're making. Explain what you're basing that assumption on, and show a clear connection to at least one strategic goal.

LOOK TO THE PAST, BUT PLAN FOR THE FUTURE. Use last year's budget as a frame of reference, but don't look only at specific revenue or cost line items, because revenue and costs are closely linked. Instead, ask yourself what the budget shows about last year's operations. Adjust accordingly. Perhaps it would make sense to increase your sales projections for specific service lines. Does it make sense to increase your marketing efforts in those areas? To make the decision, you'll need as much data as you can get about pricing, competitors, new sales channels, and other relevant issues.

Alternatively, you might plan to eliminate some services. If an area is performing poorly, does it make sense to cut it or invest more time and money?

Here are a few other questions to ask:

- Will you keep prices the same, lower them, or raise them? A small price increase might offset last year's budget sales shortfall.

- Do you plan to enter new markets, target new clients, or use new sales strategies? How much additional revenue do you expect these efforts to bring in? How much will these initiatives cost?

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SPOTLIGHT ON: New

OPINION

The staff up!

It's important for A/E/P and environmental firm leaders to have a staffing plan in place so that the organization can be ready for the next big project.

Randy Wilburn

RECRUITING NOTES

One of the biggest challenges of managing projects is being able to properly staff up whenever you have a new assignment to tackle. It's the chicken and the egg scenario, because you don't know which should come first – the work or the new employee who will do that work. It would be great if there was a simple answer to this question. You go out to meet with a potential client and extol the virtues and capabilities of your firm, while in the back of your mind you are constantly wondering if you have the capacity to do the work. I've found myself in this situation more than once in my career, and it's not the most comfortable place to be. Whenever you get new work you are putting your reputation on the line if you can't deliver what you say you can.

As a recruiter and constant hunter for new talent there is no right or wrong answer to this problem. A lot depends on your onboarding process, how long it takes for you to incorporate new employees into the system: Do you have a systematic approach to training, and can you lay out clear goals and objectives for the new hire that allows them to jump right in and not skip a beat? Obviously, I cannot answer these for you, but they are questions that should be asked and answered every time you go out to secure new work.

"It doesn't matter if you are vacillating between a new project coming down the pike or you are just anticipating future growth; you need to make sure you are hiring the right people and not just making a knee-jerk reaction to some perceived labor shortage."

Another challenge that you face is overworking your current staff while you either wait to hire or hire so slowly that you end up limping along on a project that you had high hopes of "crushing" on behalf of a client. Make sure you are fully aware of your current staff's limitations and what everyone is working on. Is everyone maxed out with work or do some folks have extra capacity and the ability to take on more work? Keep in mind some people can manage more than others and don't get as frazzled when new

"You should have a system in place that can properly support and train new people, regardless of level of experience."

work presents itself. That's why it's important to understand the makeup of your current staff before you go out and hire someone else.

It doesn't matter if you are vacillating between a new project coming down the pike or you are just anticipating future growth; you need to make sure you are hiring the right people and not just making a knee-jerk reaction to some perceived labor shortage. You should have a system in place that can properly support and train new people, regardless of level of experience. This should help them get acclimated quickly to your company and culture. This is where a good training system is worth its weight in gold. Can you bring even the most experienced professional into the fold quickly and with little fanfare, but make them feel like part of the team?

You may be wondering what a good training system looks like and, while I know what I would use, the actual ingredients for a training system will vary from firm to firm. Because we serve the design industry, I believe the foundation should include a rudimentary understanding of project management from start to finish, why budgets matter on a job – and how not to "blow" the budget, understanding and embracing the design philosophy of the firm,

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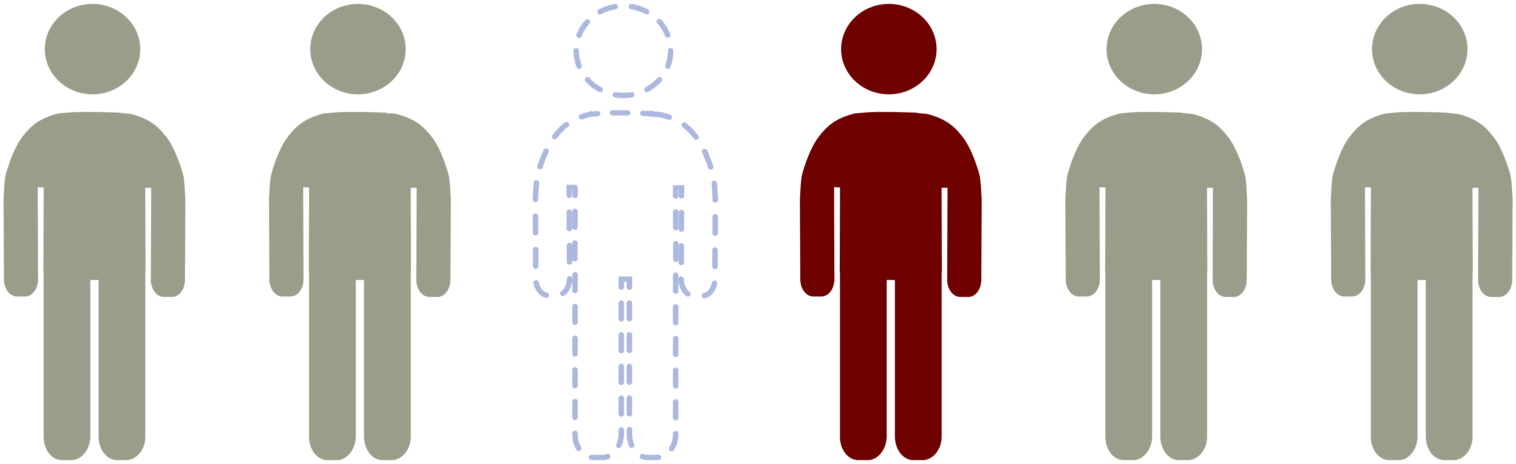

Is it time to hire?

Thinking it's time to create a new position or make a new hire? Here are a few examples of good reasons to do so.

By LIISA ANDREASSEN
Correspondent

How do you know when it's time to create a new position? When does one set of responsibilities go from being part of one person's job to a new hire? New positions and/or transfers of responsibilities are dependent on business needs – simple as that.

ANALYZE FIRST. Laura Hartman, senior manager of HR business partners at **Kleinfelder** (San Diego, CA) – a 1,900-person global science, architecture, and engineering consulting firm – says that if it appears that the scope of an employee's job is no longer matching up with their job description, that they do an analysis to see if this is a new job or a reclassification to another current job.

"In determining where/when the responsibilities go, we look at the work the employee is performing to see if it makes sense to keep the duties with one employee or if it's really two different jobs," she says.

Hartman illustrates with the following scenario that relates to the implementation of a new accounting position:

"We had a biller position. This person was responsible for working with the project managers to create the bills and get them out to the client. During the implementation, we realized the responsibilities of this position were changing and it was necessary to upgrade the requirements and responsibilities of this position to include more of an accounting function. During this process, we realized our project administrator had some similar duties as the old biller position. It was necessary to look at the duties of both positions and more clearly define the roles and responsibilities of each position. The end result was creating new biller descriptions, but updating the project administrator position to better reflect the responsibilities and expectations of that position – and to also make sure we didn't have people doing duplicate work!"

Andrea Herran, principal at **Focus HR** (Barrington, IL) shares that there are several reasons that a new position needs to be created. She outlines them as follows:

- **New skills/knowledge needed.** This is when the business is growing and previously you had a person in "maintenance mode." Now the necessary skills and knowledge need to be upgraded to keep up with the responsibilities or new demands. For example: You have a bookkeeper who has been doing AP and AR. Your company is growing and you need someone to be more strategic, work with the bank, determine cash flow. Now you need an accounting manager/controller.
- **Growth.** You need more people to do the work needed. For example: You have technicians who install your systems at the client location. When you started, you had one installation a day and one team was sufficient. Now you have three installations per day on average and you need another team.
- **Overload.** This is when you have one person who has been taking on more work, does various activities/tasks, or the job is getting bigger than one person. This can be harder to determine when to bring on another person or create a new job. Some factors to keep in mind: 1) Is the person needing to work overtime or

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- Will your cost of goods change?
- Are your suppliers likely to raise or lower prices? Are you planning to switch to lower-cost suppliers? Will quality suffer as a result? If so, how much will that affect your sales?
- Do you need to enhance your product to keep your current clients?
- Does your staff need more training?
- Are you planning to pursue other special projects or initiatives?
- Articulating your answers to questions like these ensures that your assumptions won't go unexamined. It will help you to create budget numbers that are as realistic as possible.

COLLABORATE FOR SUCCESS. The budget process is an excellent way to foster teamwork and to obtain buy-in. Because most firms focus on maximizing their billable hours, the strategic planning tasks tend to be relegated to only a few people. Although this idea makes sense, it leaves some staff members feeling left out. A well-planned budget process involves everyone and provides valuable input while improving morale.

So, talk to your staff. Find out what they need. Begin with last year's budget and make the changes that fit your plans. Also, consult websites of trade associations or trade publications for data on industry averages.

Because your budget must be compared and combined with others in the organization, your company will probably provide you with a standard set of line items. When you've filled those in, take a step back: Does this budget meet your goals? It's easy to overlook big-picture goals as you get into line-by-line details. And finally, can you defend your budget to others?

WELL-PLANNED BUDGET BENEFITS. Paul Gergel, a partner at **WithumSmith+Brown PC** (Princeton, NJ), an accounting firm, says that a well-conceived and executed budget offers many benefits, including:

- Providing a benchmark to measure achievements and shortfalls.
- Helping the firm set directions to meet short-term goals.
- Providing mechanisms to develop long-term strategies.
- Serving to change corporate direction.
- Allowing the firm to implement strategies to correct less than-desirable results.

He advises that as you work through your budgeting process, you should begin the process during the 10th month of the fiscal year, and plan on completing it prior to the year's end. You should also:

- Establish a committee and set up responsibilities.
- Prepare a timetable with tight, reasonable deadlines.
- Allow the participants time in their schedules for the process. Don't expect them to do everything in the evening or on weekends.
- Prepare input forms for department heads, personnel responsible for functional areas, and all partners/principals.
- Hold a meeting to explain the process, forms, and the timetable.
- Make the financial officer available for "coaching" or assisting individuals as they work through the process.
- The managing partner should have adequate input into the process and should review responsibilities.
- Present the final budget to owners for ratification.

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time management skills, and knowing how to cross-sell and cross-promote other areas of your company. It sounds like a lot, I know, but you can take each of these areas and turn them into bite-sized learning chunks that even the newest engineers and architects can embrace and implement.

Once you determine what you want to do you need to move forward with confidence and the ultimate assurance that your decision-making skills, whether to hire or sit tight, will ultimately benefit your firm. Even if your decision is not a popular one stand by your choice and at least try to make it work. If you have a strong training program in place then the fear of hiring someone and having them fall on their face is greatly diminished. You never know how things will turn out unless you try.

RANDY WILBURN is director of executive search for Zweig Group. Contact him at rwilburn@zweiggroup.com.

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longer hours on a regular basis to get the work done? 2) Are they making more mistakes than before (not typical behavior)? 3) Overwhelm – the one person just can't do it anymore.

HONE YOUR DETECTIVE SKILLS. " 'Overwhelmed' can be and is the most difficult to determine when it is occurring," Herran says. "It is usually disguised as 'hard work' or 'loyalty.' Most employees won't say much and will just plug along. You will need to notice a change in attitude, personality, and the appearance that he/she is just getting by, etc."

There are a couple of things you can do:

- Talk to the person to find out where they are; and
- Determine if the job can be broken down into two.

"For example, I have a client with a customer service position," Herran says. "The person doing the job was great at first, but over time as things got busier, she became quiet, we would find some of the work wasn't being done and she was making mistakes that she never made before. In talking to her, we determined the job had become overwhelming, and the workload had increased slowly so it wasn't obvious."

Herran's client decided to divide the job into two distinct roles. By adding the additional person, the first employee was working with her original happy personality, no more mistakes were made, and the customers were thrilled to deal with her. The second person came on and was able to learn from the first person and they had a mentor. It was a happy ending for all.

HR A SUPPLEMENT OF THE ZWEIG LETTER

The 21 Century professionals' skill-sets

Different kinds of firms require different kinds of employees; some need those with a broad range of expertise, others need a specific skillset.

BY LIISA ANDREASSEN
Correspondent

Are new types of positions popping up around architecture and engineering firms? Smaller firms tend to seek more well-rounded professionals, while larger firms have the luxury of being more specialized.

HIGHLY HOLISTIC. Pamela Rew, a partner at **KSS Architects** (Princeton, NJ), a 65-person firm, says: "As a firm with a diverse client base, KSS Architects views the acquisition of skillsets as an opportunity to identify, and bring to the table with us, the best and the brightest in each category."

So, rather than hire in-house one type of engineer – they seek to partner with the most appropriate, highest performing, type-specific engineer applicable to their client's project. From acoustic and A/V engineering to brownfield and indigenous landscaping, each challenge requires a custom-fit, highly refined solution.

"We have also, for many years, sought to hire architects with strong strategic planning and project management skills, as we extensively lead with this foot forward. Each of our architects is charged with forging and elevating robust client relationships – based on their ability to embrace client mission, steward project resources – inclusive of best-in-class skill sets, and to deliver meaningful change through architecture. We have found that

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21ST CENTURY SKILLSETS

As the design process becomes more digital and clients demand more value from their projects, it's important to stay relevant. While the core competencies such as design, planning, drafting, rendering, and BIM remain invaluable, an article in *Architect* magazine suggests that the following skills can also give designers an edge:

- **Automation.** When project schedules are tight, knowing what tasks can and should be automated boosts productivity. Architects who know basic programming concepts and understand algorithmic thinking can communicate better with programmers.
- **Coding.** Although visual programming languages can work without text commands, a designer who can code can extend the functionality of any software and catch on to new programs easier.
- **Data mining.** Buildings and businesses both generate huge amounts of data. Transferring this data into spaces that not only perform better, but also support the success of occupants is critical.
- **Building science.** Although the architecture curriculum includes building science, more rigorous coverage of the fundamentals is needed. Because buildings are intensive in their energy and material consumption, architects with a grasp on climate-specific building design and whole building performance will be sought out.
- **People and business savvy.** While empathy for a client's business forms the foundation for a good working relationship, understanding things like fee structures will serve as the basis from which to rethink compensation as the role of architects and their value evolve.

BUSINESS NEWS

URBAN ENGINEERS WINS 3 NATIONAL MARKETING AWARDS **Urban Engineers** (Philadelphia, PA) has won three National Marketing Communications Awards from the Society for Marketing Professional Services. The firm was recognized in third place in the Advertising category, third place in the Holiday Video category, and first place in the Digital Magazine category, meaning the firm's publication, *Excellence,* was recognized as best in the country. The awards were presented at the 38th annual SMPS Awards Gala held during the organization's national conference in Los Angeles.

"It is exciting to be recognized by our peers in the AEC marketing community," said Urban Executive Vice President Kenneth Fulmer. "Our corporate development team is dedicated to championing the quality work that makes Urban successful. It is an honor to see our efforts recognized by SMPS as being among the best in the country."

REVISED ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEMS STANDARD NOW AVAILABLE The American National Standards Institute has announced that the newly revised "ISO 14001:2015, Environmental management systems – Requirements with guidance for use" is now available at webstore.ansi.org.

"ISO 14001:2015" sets the requirements for an environmental management system, and compliance to the standard ranks high on the agenda of thousands of organizations worldwide.

Key enhancements to the new version of the standard include:

- A greater commitment from leadership
- An increased alignment with strategic direction
- Greater protection for the environment, with a focus on proactive initiatives
- More effective communication, driven through a communications strategy

NEW PROFESSIONALS, from page 10

architects with a broad, diverse, and often liberal arts background are the best resource for our clients' holistic needs," she says.

Jennifer Duron, associate and bookkeeper with **English + Associates Architects, Inc**. (Houston, TX), an 18-person full-service architectural and interior design firm, says that as a small firm, many of the company's employees are multifunctional and perform work on many aspects of a project.

"While our firm size does not allow us to hire someone as a 'specialist' in any particular area where that is their primary function, over the past couple of years we have specifically listed in our job postings that certain skills are preferred," she says.

For example, if an applicant has exceptional knowledge in Revit, energy modeling, is LEED accredited, and/or has sustainable design experience and meets all of their other hiring criteria then they are preferential.

> "We have found that architects with a broad, diverse, and often liberal arts background are the best resource for our clients' holistic needs."

CREATING CUSTOM TOOLS. Heath May, associate principal and director of LINE at **HKS | LINE** (Dallas TX), a 1,000 person architecture and engineering firm, says that they have recently hired a few people with non-traditional backgrounds or skillsets.

"We use scripting and coding daily to enhance the function of our software, create custom toolsets, etc., and we do a lot of environmental simulation," he says.

A few recent hires included a computational applications developer and a computational designer.

Both job responsibilities include:

- The control of 3-D geometry
- Techniques for design modeling
- Techniques for digital fabrication
- Techniques for simulation and analysis of architectural research

These people also develop new toolsets for:

- Modeling techniques
- Software platform interoperability
- Environmental simulation/analysis
- Research, analytics, sustainability, and IT

Some jobs for overall HKS research have also emerged. For example, Upali Nanda, Ph.D., is the director of research and executive director for HKS's nonprofit research arm, and Angela Ramer is a design anthropologist.

Analytics is another key focus and among these jobs, Marty Miller is a simulation leader and works as leader of decision analytics; and Kristopher Leonhardt was recently hired as an industrial engineer to work on decision analytics.

HKS DesignGreen has also hired a new sustainability engineer. This full-time position requires someone with an engineering background and passion for sustainability. This person needs to be a licensed PE (or not pursuing licensure) with experience in energy modeling and building systems design.

Finally, chief technology officer, Hilda Espinal, is HKS' leader for the vision, application, and integration of digital technologies firm-wide. Her role is to translate business, technical, design, and delivery challenges into innovation opportunities, solutions, education, and development of best practices via their diverse portfolio of design applications.

TALK TO US

Have you begun adding never-before-seen positions to your job roster? Have you noticed emerging trends in the job market and/or job seekers? Do you have insights or predictions on where the industry is headed and the types of skills that architects, engineers, and environmental planners will need to stay competitive?

If you have thoughts or comments on these topics – or any topics in THE ZWEIG LETTER – or, if you have a suggestion for a story, please email Managing Editor Andrea Bennett at abennett@zweiggroup.com.

Can your BIM be better?

BIM has improved coordination and productivity immeasurably for firms in the AE industry, but the technology still has room to improve.

BY LIISA ANDREASSEN
Correspondent

By definition, building information modeling should have flawless and smooth data flow from one discipline to another and from one model to another, yet designers, engineers, and modelers still face challenges with integrating information in a streamlined process.

Hisham Odish, BIM manager at **RTM** (South Barrington, IL), a 100-person engineering consulting firm, says that although the intended process of BIM is solid, a gap still exists among disciplines that makes it challenging to coordinate project data in an efficient and simplified way.

"BIM has elevated coordination and productivity to a level that did not exist in the industry before its conception, but bridging the gaps among disciplines and eliminating duplicate efforts would improve its use," he says.

Rachel Ritchie, director of design technology at **Little** (Durham, NC) – a 330-person integrated architecture, engineering, and land development firm – says that an increased compatibility between BIM applications or platforms and the transfer of information within BIM would improve its use.

"It would be ideal to have the ability to add more information for the owner's future use without including it in construction documents, which ultimately slows down the use of BIM. If the speed of the applications was improved, more information could be added," Ritchie says.

HOW IS BIM BEING USED? Currently, RTM is serving as a liaison between the general contractor and the mechanical, electrical, and plumbing subcontractor for a new construction project on a higher education campus. As an engineering-based project manager, RTM is working under the general contractor's umbrella and is providing BIM management on-site.

Its scope of work entails analyzing the model to determine which MEP components are going to work,in terms of constructability, and providing conflict resolution to solve any issues.

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ON THE MOVE

DANA MCGOWAN JOINS ESA AS CULTURAL RESOURCES PRACTICE LEADER **Environmental Science Associates** (San Francisco, CA), a leading environmental consulting firm, announced that Dana McGowan, has joined the firm as cultural resources practice leader. From the firm's Sacramento office, McGowan will lead the its Cultural Resources practice, which is comprised of a team of 60 professionals, including prehistoric and historical archaeologists, architectural historians, preservation planners, maritime archaeologists, and curation specialists. McGowan replaces Mitch Marken, who remains a key member of ESA's cultural resources team with an expanded role in national marketing and business development.

"Under Dana's leadership our cultural team will continue to grow on the successful trajectory of providing clients with expertise in an increasingly complex regulatory environment. Her thorough understanding of regulations and proven portfolio of complex projects will represent a broader foundation of knowledge for our clients to draw from." said Brian Ramos, ESA's chief operating officer.

McGowan is a registered professional archaeologist with more than 34 years of industry experience. She is a recognized expert in NEPA, CEQA, and Section 106 of the National Historic Preservation Act. She brings extensive experience conducting environmental work for all types of infrastructure, including transportation, water, and energy projects, as well as wide-ranging rail experience. She is skilled at bridging environmental compliance and construction, and spent more than a decade working on the San Francisco Transportation Authority's Doyle Drive Replacement Project.

Before joining ESA, McGowan was the environmental manager of Parsons-Brinckerhoff's Program Management Team for the California High Speed Rail Project, overseeing the environmental work for the entire 520-mile-long project. Before that, McGowan was the Branch Leader for a publically held international firm's Sacramento office, where she led a multidisciplinary team of 150 full-time personnel and was responsible for the marketing and client service for the firm's cultural resources program throughout the United States.

BUSINESS NEWS

PRIMORIS SERVICES CORPORATION ANNOUNCES INDUSTRIAL AWARDS VALUED AT MORE THAN $30 MILLION **Primoris Services Corporation** (Dallas, TX), one of the largest publically traded specialty construction and infrastructure companies in the U.S., has announced three related industrial awards totaling in excess of $30 million. The contracts were secured by Primoris Energy Services' James Industrial Contractors, part of its energy segment.

Two of the awards are for the civil work and mechanical erection at a new methanol production complex located in Beaumont, Texas. JIC will perform all the civil and underground work at the site, in addition to erecting the reformer and all associated mechanical work.

The third award is for the civil work required for a new Air Separation Unit located next to the methanol complex. JIC will perform all the civil and underground work at the site.

The scope of work includes more than 14,000 cubic yards of concrete, 24,800 linear feet of underground high density polyethylene piping, and 75,000 linear feet of underground electrical copper.

Construction is scheduled to start in the third quarter of 2015 and is expected to be completed in the third quarter of 2016.

RETTEW OPENS NEW SAFETY TRAINING CENTER With a recent expansion, **RETTEW** (Lancaster, PA) an engineering consulting firm, now offers possibly the largest indoor training center for safety consulting in the state.

The 3,200-square-foot facility will be used by RETTEW to conduct safety training courses, including specialized equipment simulations, for a variety of clients. The space is also available for professional events and meetings, with seating for 50 people and plenty of space for interactive demonstrations.

"Our safety consulting group is well-known in the area for their in-depth knowledge and hands-on teaching style," said Mark Lauriello, president. "With such a stellar team, we're excited to offer a great space to help clients throughout the state meet industry regulations and ensure their staff are equipped to keep their workplaces safe."

The training center offers courses such as fall protection, confined space and hazardous waste.

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"We will speed up the construction process by being able to make the changes in real time and improving coordination among disciplines," says Tony Mirchandani, CFO at RTM.

Ritchie says that, while the expected deliverables have not changed with BIM, the firm's ability to provide design intent with more 3-D visuals and to coordinate between disciplines has improved. The firm tries to capitalize on ability to export to analysis programs, whether for structural, energy, or daylighting.

"We are constantly striving to find ways to better use the 'information' component of BIM without slowing down the modeling," she says.

A BIM WISH LIST. Mirchandani says that, even though BIM provides countless benefits for design and construction teams, he believes a few adjustments would improve the process:

- The ability to connect elements from one model to another. For example, connect piping from the plumbing model into plumbing fixtures that are in the architectural model and circuiting/powering lighting fixtures in the linked models.
- The ability to graphically adjust grids and levels from linked models, rather than creating them in the native model, in order to control their appearance.
- To establish a true collaborative environment where all models can reside, function, and communicate with other models quickly, regardless of the country of origin. Third-party companies provide a solution for international collaboration, but they are a pricey alternative.
- The ability to format text, since it is a big part of any design documentation.
- To eliminate the need for multiple software and plug-ins to take a project from the initial design concept to building management. It would be ideal if one platform software could perform all the middle steps, such as energy analyses and daylight and load calculations, from concept and schematic design all the way to fabrication and building management.

Ritchie says that the team at Little would like to see more development in automation to enhance the building design and documentation process.

"In Revit specifically, it would be helpful if there was more flexibility in turning on/off certain pieces of information without turning off the entire object," she says.