

# BIM, DESIGN-BUILD AND GREEN ENTER A RENAISSANCE PERIOD

BY LAUREN PINCH

## WHAT TO ANTICIPATE IN

Poised at the starting line of 2008, contractors are facing a lot of uncertainties. Concerns about tighter lending conditions, marginal economic growth predictions and consistently high material prices will force the construction industry to seek creative ways to keep itself ahead of the game and avoid falling victim to a building downturn.

In addition to assessing their potential for growth in individual construction market sectors, contractors will scout out business management methods that reduce risk and enhance profitability.

A few hot trends and buzzwords stand out for the industry in 2008.

### PRE-PLANNING AND PRODUCTIVITY

"If I had to name one of the top trends of 2008, I'd say it's: 'Do what you do, better,'" says Matt Stevens, author of McGraw-Hill's *Managing a Construction Firm on Just 24 Hours a Day*.

Contractors should focus on modern methods, such as construction technology, to enhance and streamline ordinary business practices, he says. For example, the average contractor uses only about 10

percent of the capabilities of the software it already owns. By using software modules more effectively, contractors can make the most of their existing tech investments.

In addition, Building Information Modeling (BIM) will continue to be the industry headliner.

"Looking ahead, I am excited about BIM technology," Stevens says. "A seasoned foreman can sit down with a project manager and an owner's representative, and they can build the job virtually. The owner will be happier, fewer changes will occur, and the planning will be more in depth."

Pre-planning will be essential as contractors head into a new building cycle. "It's amazing that the general belief is that we delay the project by three weeks, and add three weeks onto the end of the schedule, by having pre-planning meetings. That's just not true. BIM helps create a structure so that once we start to build we are rewarded by an on-time, on-budget project."

James Cramer, president of the Greenway Group, a management consulting firm in Atlanta, agrees the rapid adoption of BIM technology will continue throughout 2008.

"Integrated and more overtly collaborative professional practices can be expected in planning, architecture, interior design, engineering, landscape architecture, construction and facility management," Cramer says. "Project management will be enhanced through round-the-clock websites with new procedures, protocols and processes."

The Greenway Group also predicts double-digit productivity increases, with typical revenues per employee increasing by more than \$27,500 in the year ahead.

"Profits per partner will increase significantly, changing target goal levels in many private practices," Cramer says. "Expect 100 percent improvement in productivity spanning 10 years."

### BUDGETING

With wary economic forecasts ahead, Stevens says contractors must focus on cost and volume control.

"If you're looking to grow your business by 30 percent this year, be careful," Stevens says. "Prices will be unpredictable, and this may make extended contracts a challenge."

# 2008

But he warns against overreaction to hints of recession. “Do not make your own personal recession,” he says. “We are still the nation’s second largest employer, and the safest place to invest in the world. We’ve got a lot of legs under our table.”

The safest strategy this year is to go after tried-and-true projects, rather than pushing into riskier markets.

“You don’t hurt yourself by staying the same size as you are now,” he says. “The 10- to 15-employee firms should concern themselves with providing for their employees, their retirement plans and their families. Let’s worry about being better, not bigger.”

## WORKFORCE

Sustaining the construction workforce is another recurring theme this year. While it’s not a new trend, craft training is—and always will be—an essential investment. “To grow an industry-ready craft professional may take more than 10 years—longer than it does to earn a college degree. The general rule of thumb for the industry is to devote 2 percent of payroll to the training budget,” Stevens says.

This translates into 10 minutes a day of training between supervisors and subordinates—and a reasonable monetary investment.

“You can’t underestimate the value of

a qualified craft employee. If you have 25 craft professionals with at least five years of experience, who always perform quality work, you have an edge over the competition,” he says.

With baby boomers leaving the workforce, the industry continues to worry about losing relationships and skill sets.

“Talent shortages will intensify,” Cramer says. This will put pressure on contractors’ payrolls. Supply-demand economics will raise base pay by an average of 6.7 percent in 2007 and 6.1 percent in 2008, he notes.

To fill the generation gap, firms will begin to abandon compulsory retirement programs, and younger partners will be promoted more rapidly.

According to the Greenway Group, highly educated and experienced employees, or “knowledge workers,” will migrate toward coastal, southern and western geographies, leading merger and acquisition activity to occur where the workforce is motivated to reside.

In addition, colleges and universities are experiencing a rise in enrollment of foreign-born engineering and architecture students, signaling more industry diversity and a potential for outsourcing as these interns return to their native countries.

More women are entering the industry as well. For example, female attendance at accredited colleges of architecture has reached 50 percent.

## RISK MANAGEMENT AND PROJECT DELIVERY

Another trend will be a renewed focus on measuring return on investment (ROI) rather than profit margin for each project. “It’s better to have a smaller margin with a better ROI,” Stevens says. “The No. 1 consideration is that the working capital you invest gets rewarded. The No. 2 consideration is what you make.”

In terms of project delivery, contractors will increasingly adopt the role of master builder. According to the Greenway Group, design-build service delivery will grow at a 2.1 percent to 2.8 percent annual rate in the United States, but with significant variations depending on geography and building type.

“This will substantially affect issues of risk management because so many formerly competitive entities will be linked by contractual bonds,” Cramer says.

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Learning from the challenges of the past decade, contractors will continue to plan for a worst-case scenario.

“Wild cards and inevitable surprises, including severe weather and terrorist acts, are forecast into planning and construction schedules, allowing projects to absorb the events with expectant agility,” Cramer adds.

### GREEN BUILDING

In the decade ahead, the stage is set for a green building renaissance.

“The green building movement is not going backwards or down,” Stevens says. “If we can make that more a part of our culture and our climate, we’re investing ourselves in a growing niche.”

According to the American Institute of Architects (AIA), since 2003, the number of cities with green building programs has risen from 22 to 92 for an increase of 418 percent. The AIA recently analyzed 661 communities with populations greater than 50,000 to spotlight the growth and effectiveness of green building policies.

The report, *Local Leaders in Sustainability*, found:

- One in seven cities surveyed have a green building program, and following current projections, that number will increase to one in five this year;
- 39 percent of citizens live in cities with a green building program; and
- 36 cities are in the advanced stage of developing a green building program.

And according to McGraw-Hill Construction, green buildings will comprise 5 percent to 10 percent of the nonresidential building stock by 2010, with public structures and schools leading the way.

“The great news for contractors is that the green building market is unsettled,” Stevens says. “Any growing market allows new entrants easily.”

Clients will look to trusted, dependable sources to build their first green building project, even if the construction firm does not have the most experience—allowing smaller contractors to ease into this niche.

“Starting small and building a single low-profile project is a patient approach,” Stevens says. “In the future, profits and market share are sure to come with knowledge, business understanding and a craft skill in building green.”



As a rule of thumb, contractors should always look to procure local materials, such as indigenous wood or clay, rather than hauling materials hundreds of miles and expending energy.

Also, don’t just look at what materials are used, but how they are manufactured. Materials including brick, recycled asphalt, demolished concrete and hay bales are more efficient to manufacture and can reduce heat transfer once the structure is built.

“Firms without green repute will become anti-strategic in the marketplace,” Cramer concludes.

### SMART DESIGN TRENDS

As a sidebar to green building, “smart” building components also will work their way into new projects. For example, walls and floors will be constructed with artificial intelligence to detect changes such as temperature or unaccompanied luggage in airport terminals.

Zero-energy buildings that produce more energy than they consume by using wind or solar power—such as the Pearl River Tower under construction in Guangzhou, China—eventually will make their way to high-density commercial and residential developments in the United States.

“Watch for new tax incentives and the increased appearance of small wind turbines discretely designed into commercial and select residential projects,” Cramer says.

In the meantime, some design trends

will emerge for traditional construction. In particular, planners will emphasize a “neighborhood” concept.

Design will “focus not only on buildings of firmness, commodity and delight, but also on the experience of place that creates new economic engines in diverse building types,” Cramer says. These fresh communities will promote healthy living and feature a return to traditional-looking retail and residential buildings.”

In addition, modular and pre-fabricated structures will play a larger role in retail, residential, manufacturing and K–12 education construction, particularly in rapidly growing communities.

As almost 200,000 people are added to the urban population each day, communities will continue to face challenges for water, housing and planning—placing demand on architects, engineers and contractors alike. The industry will be responsible for providing for overall quality of life, even after construction is finished.

“Life cycle design will become a dynamic new service offering for professional practices that will take contractual responsibility for structures over their useful life,” Cramer says. “Clients understand that taking care of their buildings is a smart investment—who better than the original designers to take responsibility for a building’s stewardship?”

**Pinch is assistant editor of *Construction Executive*.**