



FutureFocus 2012+

The Road Ahead for Professional CM

CMAA
Foundation

Introduction



The mission of The CMAA Foundation is to create, collect and disseminate new knowledge about economic, business, and social trends that will affect the practice of professional Construction Management.

In support of this mission, the Foundation invited a panel of leading executives from CM and Program Management service firms, along with prominent owners of capital construction programs, for an all-day discussion of the five-year future of the profession. The discussion was facilitated by James Dalton. This report recounts the major elements of the discussion.

Participants in FutureFocus 2012+ were:

- » Stephen Ayers, FAIA, Architect of the U.S. Capitol
- » Mark Cacamis, PE, CCM, State Construction Engineer, Virginia Department of Transportation
- » William Guerin, Assistant Commissioner for Project Delivery, Public Buildings Service, U.S. GSA
- » Julie Labonte, PE, Director, Water System Improvement Program, San Francisco Public Utilities
- » Robert Prieto, Senior Vice President, Fluor
- » Chris Reseigh, FCMAA
- » Milo Riverso, PhD, PE, President, STV, Inc.
- » Bob Stundtner, Director of Capital Projects Management, Cornell University
- » Chuck Thomsen, FAIA, FCMAA

Executive Summary

A new business model for Construction Management is emerging and will become the norm over the next five years.

This model responds to owners' increasing focus on outcomes rather than output, on life cycle rather than first cost, and on the "triple bottom line" of business, environmental and social impacts.

In order to meet these owner expectations, CMs will have to help them move construction away from site-based, craft-dominated processes and toward a more typical manufacturing environment. Such an environment will be characterized by:

- » Fewer, longer-lasting and more trust-based relationships
- » Earlier engagement of contractors and vendors in capital programs
- » More reliance on modularization, prefabrication, and off-site manufacturing of key components
- » Faster delivery times
- » Integration of the supply chain
- » More reliance on automation and such technologies as BIM 4D/5D modeling, GPS, radio frequency tagging, mobile device applications, cloud computing, on-line collaboration tools, and use of video surveillance, time-lapse photography and social media.
- » An Increased sharing of risk, including the risks that accompany leadership development and process innovation.
- » More predictability through the adoption of more comprehensive constructability review and risk management practices.

Some parts of the industry—notably the public sector—have long-standing, built-in constraints that may prevent them from achieving the benefits of this transition.

Moreover, to fully achieve this vision, technology must be linked more closely to humanity than ever before. Tomorrow's Construction Managers will need heightened communications and leadership skills more acutely than they will need engineering expertise and other technical know-how. The CM profession is not currently doing an adequate job of developing these skills.

Tomorrow's enlarged and more integrated CM/PM function will require professionals who can exercise *influential* leadership as well as the defined functions of *structural* leadership. Influential leadership means the set of skills and behaviors that actually inspire colleagues

to work together toward a shared goal. Not only is the industry not currently nurturing these skills and behaviors, but its business model and contracting environment actively discourage such development.

The academic community has not prepared students for the industry, and in all likelihood cannot do so, given its current organization and culture. FutureFocus participants were united in the view that industry must take on more of the task of educating and training its own personnel, since academia is unlikely to evolve its practices sufficiently within the foreseeable future. Indeed, graduates of traditional engineering and construction science programs generally do not enter the workplace with the right skill sets to succeed as CMs in the impending new environment.

The emphasis on the "triple bottom line" means that tomorrow's CMs must help owners earn and retain a "social license to operate," i.e., acceptance of their activities by a broad array of stakeholders, many of whom are not directly involved in specific projects.

This has particular implications internationally, and most especially in the developing world. The skills and principles of CM/PM can make a major contribution to improving the quality of life in the developing world, and the industry should strive for a more consistent and substantial commitment in this area in the future.

*Stephen Ayers, Architect
of the U.S. Capitol.*

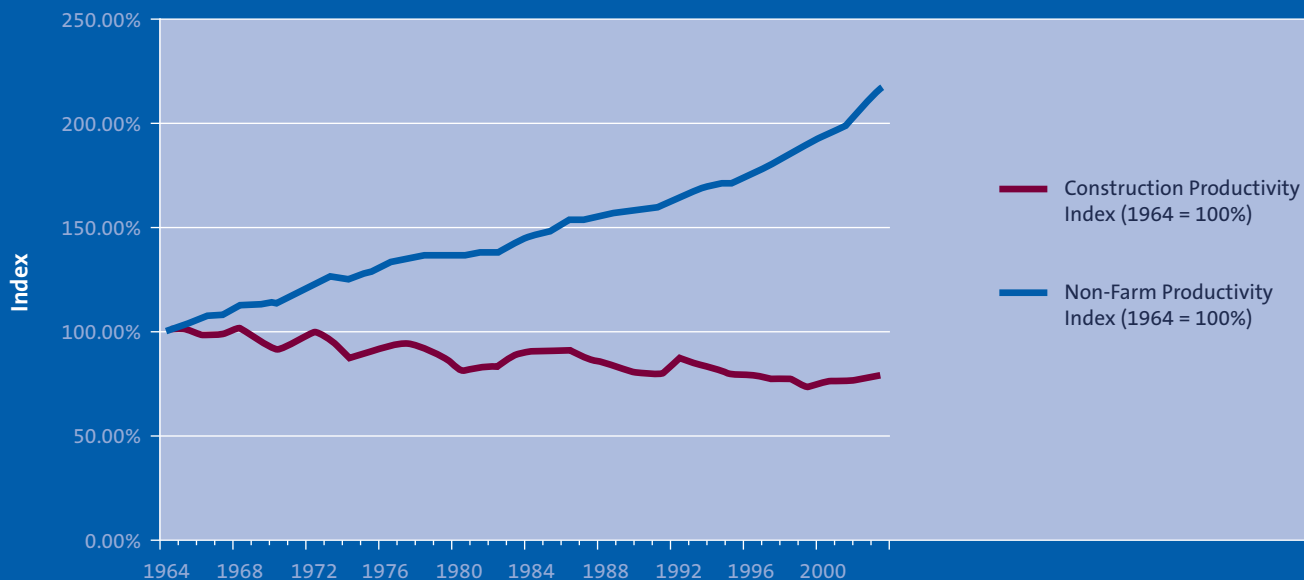


A Tale of Two Curves

Construction & Non-Farm Labor Productivity Index (1964 – 2003)

Constant \$ of contracts/workhours of hourly workers

Sources: US Dept. of Commerce, Bureau of Labor Statistics



Two graph lines that have been steadily diverging for nearly a half century starkly portray the challenge that will shape the future of the construction industry and the ability of professional Construction and Program Managers to lead the industry to greater success.

The top line shows the spectacular growth of non-farm labor productivity in the United States since 1964. That productivity has more than doubled. The bottom line reflects the productivity of the construction industry. It has declined by more than 20 percent as more of the traditional construction work has been transferred to manufacturing in the form of skid mounted and pre-assembled components, and prefabricated modules.

FutureFocus participants agreed that this huge productivity gap reflects fundamental differences between the manufacturing environment and the “field” environment typical of construction—and that to increase productivity, we must transition as much of its work as possible from the lower line to the upper. “It’s not so much about getting man-hours off the site,” said Fluor’s Bob Prieto, “but also bringing them into a more manufacturing environment.”

One of the basic environmental differences is “the need to understand and manage the chaos of construction projects,” according to Mark Cacamis of the Virginia DOT. Much of this chaos may be unavoidable, and is multiplied by the revolutions that have taken place in communications, collaboration, social media and other areas.

Chuck Thomsen described a variety of other particulars in which manufacturing and construction proceed along very different paths.

The differences between manufacturing and field construction are enormous...they’re huge differences. The environment is number one. We’re out in the mud and rain. The weather is unpredictable. The production duration is another difference. Manufacturing a product may take minutes—days at the most—construction can take years. With manufacturing, we implement processes that are far more repetitive than with construction. That improves efficiency, quality and cost predictability. In manufacturing, the supply chain is more continuous, in construction, delivery from a supplier may be a single event.

But the big differences are the people. In manufacturing workers are task trained, usually work individually and are often stationary while products are fed to them. In construction, workers are craft trained, their work is varied and they work in teams. They must manage the distribution of materials on site themselves. And not the least difference is the client involvement. Manufacturers typically work for an abstract consumer that they never see. Those of us in the construction industry have our clients engaged constantly. They care about what we’re doing, and are looking over our shoulders with something to say about how we do it. These differences make a huge difference in productivity.

» CHUCK THOMSEN

Prieto led off the panel presentations with his view of the new business model for CM. "Is there a new business model developing out there?" he asked. "The short answer is yes, and some of the drivers of that are a hollowing out of capabilities on our clients' side, a scaling up of projects, an introduction of complexity in those projects and a shift in primary owner focus...and that shift is an owner looking for an outcome as opposed to an output."

This change is "not coming as one grand question, but it's coming as a series of questions," Prieto continued. "Owners don't care about the plan, they care about what the plan is going to do, the outcome. In the past, it was 'how many man-hours, and did the project get delivered on time?' Now it's 'will it perform in a certain way?'"

This owner orientation is driving acceptance of such changes as:

- » Earlier involvement of CMs, contractors, subcontractors and even equipment manufacturers in the design process.
- » Fewer relationships, fewer suppliers, fewer bidders and a move away from procurements based on lowest cost.
- » Reliance on prefabrication, modular construction and other ways of moving labor-intensive activities into factories and off job sites.

In fact, Thomsen noted that the two graph lines are misleading. The bottom line that shows the low productivity of the construction industry measures field construction. It does not measure the productivity of the manufactured products that are integrated into construction. Curtain walls, elevators, MEP equipment, ceiling/lighting systems, plumbing fixtures and many other products are made in factories and are likely to be made the same high productivity as other manufactured products.

The bottom line calculates only the most labor intensive, craft-based and inefficient elements of a project. The goal, then, is to minimize the part of the project produced on the lower curve and maximize the benefits of the upper curve. The objective is to "assemble" buildings on the jobsite rather than "building" them.

Controlling the construction environment and the ability to do modularization is the key. If Fluor designs a pumping station for pipelines and they're willing to package it and sell it, there's no reason other designers wouldn't specify it the way they would a valve.

I was invited over to London to observe P3 applications. Balfour Beatty did vertical integration for hospitals...They went and bought manufacturing plants that did all the bed-bathrooms. So they put up the steel and poured the concrete and they delivered 300 bathrooms and they roll it right into place. For the operating walls, they have the walls already prefabricated with all the gases, all the instrumentation, all the equipment inside of it. All the mechanical runs, the electrical runs, are all prefabricated... and these are smaller hospitals. We do a lot of \$50 and \$100 million hospitals in this country. We are doing a 10-story hospital with one electrician on site.

» MILO RIVERSO

In addition to components like bathrooms, prefabrication and modularization can be incorporated into the design process as well. A project, for example, might have multiple designers custom-designing steel structural elements, and provide them all with a catalog of standard shapes. "They can design with any shape they want as long as it's in the catalog," Prieto says.

Of course, practices like modularization may be slow in moving into the construction industry, and may not be suitable for many buildings. Many contractors and owners are finding such concepts as lean construction, optimizing the work in the field and eliminating waste (all "as in manufacturing") are equally as important as modularization.



Milo Riverso, President,
STV, Inc.

Integrating the supply chain into program management also promises major advantages. Early adopters are using RFID (radio frequency ID tags) and GPS to keep track of components and equipment throughout their manufacturing and delivery processes. “We want to be able to track something that’s not yet in our warehouse or on a truck, something that’s in a factory in China or a warehouse in Australia. We want to be able to change the sequence of construction long before we ever get word from the factory that it’s running late.”

At the other extreme, tomorrow’s CMs/PMs will be expected to marshal technology to support ongoing building operations, including maintenance, staff training, repair schedules, and eventual end-of-life de-commissioning. William Guerin of the U.S. General Services Administration said this is one of the underpinnings of his agency’s effort to implement smart building technologies throughout the federal portfolio.

“We really need CMs that understand technology,” Guerin said. “We’re in a transition now from a very traditional process to a very different mindset. We’re looking for CMs who can get into the process with us.”

That focus, Guerin explained, extends well beyond the traditional end of construction. “How can you prove the building actually performs unless you operate it for a period of time? That’s a huge challenge for us. Our designers are promising a lot. The constructors can say, I did what you designed and it’s not operating appropriately, and indeed, our building operators are not up to the task to operate the smart buildings that we are putting in place now,” he said.

It’s happening faster than we think. I was party to a presentation last year, a small \$250 million project with a CM, and the CM was presenting things I didn’t know CMs were doing, using BIM models that drive the operations of the plant. They talked about outcomes, the management, repair, maintenance, operations inside the plant, and all that information was being captured by their software, being put back into the BIM model, and driving modifications to their operations. It’s already happening, and we’re seeing it down into smaller markets.

» MILO RIVERSO

Many of the functions embraced by this emerging total-life-cycle orientation require new approaches to procurement and contracting, which often make them difficult or impossible for some owners to pursue. “Writing performance contracts rather than prescriptive contracts is a challenge for us,” said Guerin. Similarly, Julie Labonte observed that “existing contracting process and practices that many of us are constrained by will make it hard for us to benefit” from many of the innovations in project delivery and risk sharing that were described by other FutureFocus panelists.

Stephen Ayers, Architect of the U.S. Capitol, also pointed out the potentially hampering effects of current economic conditions. “We are seeing construction bids that are 20, 30, sometimes even 40 percent lower than we had estimated,” he said. “Architect and engineer fees are significantly lower than what they were before and what we estimated. I don’t think they are making less money. They are cutting scope, and that equals risk. In the next five years, we are going to see the results of that. It will manifest itself as risk, in poor quality design documents, and secondly, the competitiveness among contractors will translate itself into risk.”

The industry’s whole approach to risk must change in the new environment, panelists said. Risk almost inevitably accompanies innovation, for instance, and innovation is generally seen as imperative if the industry’s performance is to make major gains. “Common Law is not going to change for us any time soon,” said Mark Cacamis of Virginia Department of Transportation, noting that some of the emerging new delivery models will take contracting parties through uncharted legal waters and run counter to well-established engineering and procurement practices. Prieto, also, noted “there are contractual and legal barriers to more innovation. The liability exposure as you move away from standard practice stifles innovation.”

One example cited was a CM firm that tries to assert an intellectual property right over a process or system developed on a public job. The public sector owner, panelists said, probably cannot agree to this, which provides a disincentive to the CM to innovate on that job.

Julie Labonte, San Francisco Public Utilities Commission



Technology...or Humanity?

It is almost a reflex to equate adoption of new technology with gains in productivity and profitability. Yet that connection has often not held true in construction. The construction industry has not always been quick to embrace new technological tools, and when it has, often has not seen a corresponding gain in productivity.

I find the curve of the Federal Bureau of Labor Statistics comparing the productivity of labor in construction to that of non-farm labor interesting. The time period shown on the graph (between 1964 and 2003) is when many technological advances occurred, including the Internet, cellular communication, personal computing...One could easily argue that the great increase in productivity in those other industries was due in large part to advances in technology. So why is it that we in the construction industry have not been able to benefit where others certainly have? Is it that technology in our industry may not provide the benefits that we think it does? Or are there other reasons?

A good portion of contracts in this country are awarded on a low cost basis. If you think that technology is going to make you more efficient, why is it that contractors are not falling over themselves to adopt all the latest technologies? Before we move forward with promoting the use of technology, it is probably important that we understand the reasons we have been so much slower at incorporating technological advancements in our standard practices.

» JULIE LABONTE

Many technologies, from Light Detection and Ranging (LIDAR) to tablet computing, are making their way into the construction industry. Other tools from seemingly unrelated businesses—like game technology, simulation and scenario planning—are also gaining popularity. Prieto described the increasing automation of the design process and the potential role of gaming technology in it. Designers today can use scenario analysis in their designs, and create intelligent “agents” within their design tools that will generate automatic warnings when design changes have unexpected consequences, like increasing the risk of accidents and injuries.

When a full-life orientation comes together with an expanding technological palette, the result can be a whole new set of challenges for the CM who must manage more functions and people than ever before. For example, Ayers noted that the “green revolution” has brought some very complex building systems in its wake. He noted the double-skin curtain wall recently installed on a library in Cambridge, MA. “Do CMs really understand how to build this?” he asked. “Do they understand the thermodynamics? I think they don’t.”

“Buildings are getting smarter,” he concluded. “Are CMs? It’s not necessarily so.”

Technology is enabling incredibly sophisticated buildings that will become much more complicated to design and build. I’m not sure our CMs today are poised to do that. We’re going to see our buildings become far more complicated, far more sophisticated, far more difficult to build. These new technologies equal uncertainty, uncertainty equals risk, and risk equals money.

» STEPHEN AYERS

Panelists also felt it has been too easy, up to now, to assume technological advances will usher in a golden age of productivity.

Robert Stundtner of Cornell University said, “If you have all this technology available to you, then you shouldn’t have to staff the project as intensively. I’ve seen very large project teams fumble around and lose money and take longer than they should have, and I’ve seen very lean project teams do much better.”

Staffing reductions don’t necessary flow from technology adoption, though. Milo Rivero countered that “the sophistication of our buildings sometimes requires that we end up with more staff. I don’t think reduction of the CM staff is necessarily implied by the technology.

Technology, panelists repeated, is only one part of the picture.

“More often than not, the success of a project depends on the personalities of our field staff and the human interactions involved. No technology, however smart it is, can address the intangibles associated with the human factor,” said Julie Labonte.

One factor in this equation is the degree to which technology has led to a wider dispersal of critical knowledge through a project team. Chuck Thomsen recalled that in the year the American Institute of Architects was founded, Otis installed the first elevator. Thomsen said, It was ironic that the year the AIA was founded a major system was installed that the manufacturer knew more about than the architect. That condition continued inexorably through the years. “Today most of the knowledge of construction technology and cost is with the manufacturers and subcontractors.” Architects and engineers evaluate and integrate systems designed by others more often than they design systems themselves, he said.

Clients, too, have become serial builders and have added construction professionals to their staff. “We are no longer guiding a naïve client through the dark tunnel of horrors of a construction project,” Thomsen said. “We are often working for clients who are construction professionals and who know more about their requirements and their building type than we do.”

Collaboration becomes even more critical in an environment of unprecedented communications flexibility, Cacamis said. “All the previous means of communication have been combined,” he added, “to allow forward and feedback communication between a person and a group, a group and a person, person to person and groups to groups, all simultaneously.”

Tomorrow’s CMs/PMs will have to be comfortable in these surroundings.

Managing all of this intellectual capital, and the people who provide it, is the context for what may be the most pressing of all issues facing the Construction Management profession in the next five years: Developing the *leadership* that tomorrow’s owners and programs will require. And in this respect, the construction industry may be acting as its own worst enemy.

The big thing is clients' unwillingness to pay for the deputy, or to pay for the new students. I have a public client that will not allow a new student out of school on their projects. You have to have five years' experience. There's nothing more powerful than creating the culture for leaders to be born, and creating the mentoring. If we are economically driven to eliminate that, we are hurting the industry as a whole and we will all pay the piper later.

» MILO RIVERSO

CM service firms often find it difficult to incorporate these costs in their overhead, though many do so anyway. Finally, the way firms incentivize their employees often impedes the patient cultivation of leaders.

"Our focus on management has stymied leadership development," said Rivero. "We're very numbers-driven organizations. Having our managers focus on the bottom line has stymied their leadership development."

Mark Cacamis of Virginia DOT observed: "If you went to someone, a middle manager, someone five or 10 years out of school, and said, what is leadership? I wonder if they could give you an answer."

We had a lively discussion at the CMAA National Conference on leadership. Some people felt that leaders just come to the top. Well, Pol Pot, Mussolini, Hitler, Stalin...They all rose to the top. Is that a good thing? Lots of bullies make it to the top of organizations and they have an impact on your organizational performance.

» ROBERT STUNDTNER

Thomsen drew a distinction that attracted wide support from the other panelists. "There is not only structural leadership," he said, "but there is influential leadership. People who are skilled in influential leadership may have more effect on a project than those who have positions of structural authority. Furthermore, if you examine a project, no one has complete structural leadership. What we have to talk about is how you influence the project team in an effective way."

Chris Reseigh, former president of Parsons Brinckerhoff Construction Services, agreed: "The real leaders are those who have the influence to make things happen. If we have authority, that's great, but it doesn't get the job done."

Leadership doesn't just happen, however.

The Economist magazine has noted that demography is like a supertanker. It takes decades to turn around. I think there is a sufficient supply of Construction Managers despite what we see demographically. Demographically, we see a very low birth rate in 1973, which give or take five years are people coming into superintendent or executive positions now. From 1973 on, you have the beginning of an increase in birth rates, and probably around 2018, the demographic situation will be very different.

The reason I think we have enough talent is that we are actually succeeding very well in delivering projects. We're doing that by small incremental changes. It's really stopping to see the trees from the forest. How we're doing it is with technology, talent management, and executive management.

» MARK CACAMIS

If "people" skills like communication and conflict resolution have become more important to CMs than traditional technical savvy, how well is the industry finding and developing people with those skills?

The panel's answer seemed to be, not very well. For one thing, young people entering the workforce today don't seem as competent, or as interested, in person-to-person communications. "Where you have specialized projects that require more leadership and more interpersonal skills, that's what they don't have," said Rivero. "While the industry is demanding more interpersonal skills the generation is moving away from them. They are technology-driven communicators, not one-to-one."

"We have recognized that the education a person came out of college with was not sufficient and that the need for new skills and training was ongoing," said Bob Prieto. The result was Fluor University, an in-house educational system. "Most new courses we have added in the last five years have been about people skills," Prieto said. "That's fine for a firm our size, but where does a CM in a \$10 million firm find this education? We didn't see it, or we wouldn't have created it."

He went on: "We have seen over the years certain skill sets that are going to be much more important to our business that just don't get produced by academia."

FutureFocus invited observer Manuel Garcia of the Construction Industry Institute observed that "perhaps the model we are looking at to be a leader in the future is to be a universal man, and to have the capacity to draw in the skill sets to meet challenges we can't foresee today. The way academia is structured today may need revision to meet tomorrow's challenges."

The problem may be even more fundamental, in the view of Ed Bond of Bond Brothers, chair of the CMAA foundation and another invited observer at FutureFocus. "Even the education model used today, the pedagogy model, which is, I'm the instructor and I'll tell you what you need to know, doesn't work. We're adults, what we need is the andragogy which is, as an adult, what do you really need?"

Chuck Thomsen offered the view that what new CMs need is "a clear view of the process, the systems to deal with enormous detail and the interpersonal skills to work with people. We can't get that from our universities. We have to do it ourselves."

I couldn't agree with Chuck more about the need to have more practicality introduced into college curriculums, and until these curriculums are not driven by research oriented academic types there is going to be an issue.

» JULIE LABONTE

The “Social License to Operate”

A heightened focus on the “triple bottom line” also leads professional CM inevitably into international arenas, and particularly into the developing world.

Julie Labonte had spent most of the month prior to FutureFocus in Rwanda, leading a water design assignment for the World Water Corps, the international volunteer arm of Water for People. The mission of this humanitarian non-profit organization is to build a world where all people have access to safe drinking water and basic sanitation. “If there is a place where the adoption of CM/PM principles would make a huge difference, it is in the developing world,” she said.

For example, Labonte said, “saving a few thousand dollars as a result of cost control practices or extending the life of a water system by 5 or 10 years as a result of quality management practices is so much more meaningful and critical in struggling African countries and other challenged parts of the world.”

Labonte’s experience with World Water Corps is hardly unique. Reseigh cited Bridges to Prosperity, sponsored by Rotary International. “The goal is to go into undeveloped countries and build foot bridges so people can get goods to market, get to hospitals, and so on,” he said. These “very routine bridges” don’t present design or cost challenges and often rely on donations of supplies like cable.

“It goes back to corporate citizenship,” Reseigh said. “We’ve got to get the industry to promote the mindset of individuals to be involved in social and cultural activities. After all, what do we build things for, but to improve the quality of life on the planet?”

I’m talking about a country that has no resources, that our industry would have no self-serving reasons to get involved with. Rwanda is a perfect example. They have nothing. If every industry made a small commitment, medicine, agriculture, construction, you name it, we could solve the poverty crisis in Rwanda and elsewhere in the developing world.

» JULIE LABONTE

Prieto noted that “with our younger generation people, this activity may be even more important to them than showing up for work on Monday. We are seeing not only a higher voluntary participation rate but also increased social pressure to participate.”

There are impediments, of course; chief among them is the cost of allocating staff time and resources to “pro bono” work. “A lot of firms in our industry do make this commitment,” said Riverso, citing Engineers Without Borders as an organization that benefits from significant support from STV employees. “I don’t know that our industry has the margins to afford a wide policy on it. (But) I think the industry does have a tremendous commitment to programs like that.”

Building capacity and capability in the developing world isn’t just a matter of volunteer activity, though. Introducing sound CM/PM practices, coupled with a commitment to bettering local communities, also will help address such perennial challenges as corruption. “We have to couple the fight against corruption with education of officials as to how to buy and deliver projects,” said Prieto.

There are examples where commitment to anti-corruption practices makes a difference. In one example several industry players were asked for a bribe. For the US firms the decision was easy: Just follow the Foreign Corrupt Practices Act. The non-US firms were reminded of commitments made to support an international anti-corruption agreement. All firms said no. As the story goes, the next call from the client was, how do I make a selection? I used to just give it to the guy who gave me the biggest bribe.

“We have to engage the guy in the capital but also have to engage the guy on the site,” Prieto added. This engagement can mean building construction camps that can convert to permanent housing when a project is done, or building meeting facilities that can be converted to schools.

Stephen Ayers reminded FutureFocus participants of the earlier comments that many companies had “pasted the sustainability moniker on their companies early on because they felt they needed to, and now understand that it’s a critical part of their business and they have fully embraced it. What is the construction industry doing from a social responsibility perspective? Maybe we’ve pasted these things on our billboard today, but working together to define what our social responsibility is, over the next several years, is a good thing to do,” he said.

Biographies of FutureFocus 2012+ Participants

STEPHEN T. AYERS, FAIA, LEED AP ARCHITECT OF THE CAPITOL

As Architect of the Capitol, Ayers is responsible for facilities maintenance and operation of the historic Capitol Building, the care of 460 acres of grounds, and operation and maintenance of 17.4 million square feet of buildings including the House and Senate Office Buildings, Capitol Visitor Center, Library of Congress Buildings, the U.S. Supreme Court Building, the Thurgood Marshall Federal Judiciary Building, and other facilities.

Ayers holds a bachelor's degree in architecture and a master's in Systems Management. He served with the U.S. Air Force 6510th Civil Engineer Squadron managing numerous design and construction projects, then joined the Voice of America as a general engineer in 1991. Ayers joined the Architect of the Capitol in 1997 as an assistant superintendent for the Senate Office Buildings. After a series of promotions, he became Acting Architect of the Capitol in February 2007 and Architect of the Capitol in May 2010.

Ayers is a licensed architect in California, and a LEED® Accredited Professional. He is a member of the American Institute of Architects, the National Trust for Historic Preservation, Construction Industry Institute, Washington Building Congress, and Construction Managers Association of America.

MARK E. CACAMIS, PE, CCM

Cacamis is the State Construction Engineer for the Virginia Department of Transportation, the third largest state DOT as measured by lane miles, with 127,000. The Department's 24 average monthly construction contract procurements are valued at \$95M. The Department's projects under construction are valued at \$1.9B. He is a Professional Engineer, and a Certified Construction Manager.

Cacamis started his career designing heavy civil projects. His last position as a consulting engineer was manager of construction services. He then went on to manage a division for a heavy civil contractor building projects in the Gulf Coast region. With experience in the design and construction sectors he continues to broaden his knowledge and experience by working for a large owner organization. He also has 15 years of volunteer experience serving in executive leadership roles for various industry focused non-profit organizations.

He has a bachelor's degree in Civil Engineering from the University of South Alabama and a Master of Public Administration degree from Old Dominion University. He is the 2011 recipient of the Construction Management Association of America's Distinguished Owner Award.

WILLIAM J. "BILL" GUERIN

Bill Guerin is Assistant Commissioner for Project Delivery in the Office of Design and Construction, Public Buildings Service, United States General Services Administration.

In this position, he is responsible for the construction of GSA's more than \$1 billion annual capital construction program, including the design and construction of federal buildings, land ports of entry, courthouses and other projects for the nation's largest landlord. Guerin is also the Recovery Program Management's Recovery Executive, heading GSA's response to the American Recovery and Reinvestment Act of 2009. In that position, Mr. Guerin is ensuring the timely and effective delivery of high performance green building projects worth more than \$5.5 billion that is helping to stimulate the U.S. economy and jump-start sustainable industry in the United States.

He hails from California with a BA in Architecture from the University of California at Berkeley and an MBA from the Golden Gate University in San Francisco.

JULIE LABONTE

Julie Labonte is the Director of the Water System Improvement Program (WSIP), a 10-year, \$4.6 billion program to rebuild the Hetch Hetchy Regional Water System, which serves 2.5 million customers in the San Francisco Bay Area.

Labonte is a civil engineer with more than 25 years of experience in utility engineering. She joined the San Francisco Public Utilities Commission (SFPUC) in 1995 as a water quality engineer. Her experience as a consultant focuses on the master planning and design of various public infrastructures.

Before being appointed Director of the WSIP, Labonte managed the utility improvements for all redevelopment projects in San Francisco, and initiated and directed the master planning of a 30-year, multi-billion dollar wastewater capital improvement program for the city.

Labonte is actively involved in Water for People, a leading international humanitarian organization dedicated to building a world where everyone has access to safe drinking water and basic sanitation.

Labonte holds a Bachelors of Science degree in Civil Engineering from United States International University in San Diego, and dual masters degrees in Civil Engineering from San Diego State University and in Environmental Engineering from the University of California at Berkeley.

Bob Prieto, Fluor



ROBERT PRIETO

Bob Prieto is a senior vice president of Fluor, one of the largest publicly traded engineering and construction companies in the world. He is responsible for strategy for the firm's Industrial & Infrastructure group which focuses on the development and delivery of large, complex projects worldwide.

Prieto consults with owners of large engineering capital construction programs across all market sectors in the development of programmatic delivery strategies encompassing planning, engineering, procurement, construction and financing. He is author of "Strategic Program Management" published by CMAA, and "Topics in Strategic Program Management" as well as More than 375 other papers and presentations. He is a member of the National Academy of Construction.

He has served as one of three U.S. presidential appointees to the Asia Pacific Economic Cooperation (APEC) Business Advisory Council (ABAC), working with U.S. and Asia-Pacific business leaders to shape the framework for trade and economic growth.

Previously, as a senior industry executive, he established a 20-year record of building and sustaining global revenue and earnings growth. As Chairman at Parsons Brinckerhoff (PB), one of the world's leading engineering companies, Bob shaped business strategy and led its execution.

CHRISTOPHER RESEIGH, FCMIA

Chris Reseigh recently has retired as president and chief operating officer of Parsons Brinckerhoff Construction Services, Inc. and chairman of PB Constructors Inc. He also served as the firm's technical director and senior advisor for program and construction management worldwide.

He is a Fellow of the Construction Management Association of America (CMAA), served on the Association's Board of Directors, and is currently an emeritus member of the CMAA Foundation Board. He is a Fellow and life member of ASCE. He serves on the Board of Governors of the ASCE Construction Institute and is chair of the Management Practices committee.

Reseigh is also past president of the Washington, DC ACE mentoring program and served on the ACE National Board. He is a member of the non-profit NGO Bridges to Prosperity board and is a licensed engineer in many states.

A native Australian, Reseigh holds a civil engineering degree from the University of Melbourne and a master's degree from the University of New South Wales. Major CM project experience includes the Second Avenue Subway in New York, MARTA Projects in Atlanta, and Sunshine Skyway Bridge in Florida.

MILO RIVERSO, PHD, PE

Milo Rivero is the chief executive officer and president of STV Group, Inc., one of the nation's largest and most respected architectural, engineering, planning, design and construction management firms. He has more than 30 years of experience in program management, construction and design management. He is recognized nationally for his expertise and keen insight into the many aspects of the construction industry.

He joined STV in 2005 as a senior vice president and head of the firm's Construction Management Division, rose to become president and chief operating officer, and was named president and chief executive officer in September 2011.

Earlier, Mr. Rivero served as president and chief executive officer of the New York City School Construction Authority, supervising the planning, design and construction of capital improvements and new construction of New York City's 1,199 public schools.

Mr. Rivero earned his bachelor's degree in civil engineering from Manhattan College, and his master's and doctorate degrees from Purdue University. A registered professional engineer in New York, New Jersey, Pennsylvania and Connecticut, he is active in numerous professional organizations, and is on the board of directors of the Construction Management Association of America.

ROBERT P. STUNDTNER

Bob Stundtner is Director of Capital Project Management and Interim Director of Construction Management/Capital Projects and Planning at Cornell University. He is a decisive, visionary leader with over thirty years of experience in facilities planning, budgeting, and project management at Cornell University.

Stundtner has led project teams responsible for over \$1 billion of capital construction at Cornell including designs by four Pritzker Prize winning architects and over \$500 million in science and engineering research facilities. He has long advocated for responsible environmental

stewardship and most of his projects have achieved LEED Gold certification since the university adopted his recommendation to pursue LEED Silver as a minimum requirement for new facilities in 2007.

Bob leads the university's effort to improve project management on campus by documenting Cornell policies and procedures and offering continuing education through the Project Manager's Toolbox. He has identified the CMAA's CCM credential for his staff managing projects greater than \$10 million.

Stundtner has long been active in advancing the university's diversity initiatives and currently is chair of the Cornell Veterans Colleague Network Group advising on the recruitment and retention of student, faculty and staff veterans.

CHARLES B. THOMSEN FAIA, FCMIA

Chuck Thomsen has worked on hundreds of projects in 20 countries and has hands-on experience with nearly every form of project delivery in all three basic roles: designer, manager and at-risk constructor.

He joined 3D/International, a 500-person design, management and construction company, in 1982. He was president, then chairman, until its merger with the Parsons Company in 2006. Previously he spent 18 years with CRS where he managed the company's IT initiatives, led the New York office, and founded one of the first professional construction management companies.

Thomsen has consulted with such leading owners as the Architect of the U.S. Capitol, the Architect of the Utah State Capitol, Department of Defense, Disney, Harrah's, Hoffman La Roche, Allina Hospitals & Clinics, the Harvard teaching hospitals, the University of Texas System and the Methodist Hospital System.

He is a director of FMI Inc. and MOCA Systems Inc. He was an advisory director of the Construction Industry Institute and chair of the Rice University Building Institute.

Thomsen is the first person to be elected a Fellow in both the American Institute of Architects (AIA) and the Construction Management Association of America (CMAA). He was the Chancellor of CMAA's College of Fellows. He was elected to the National Academy of Construction in 2008.

He is the author of three books on the management of design and construction that are texts at several universities.



The CMAA Foundation

The CMAA Foundation was created in 2001 by the Construction Management Association of America to provide dedicated, consistent funding for activities designed to strengthen the professional practice of CM, expand basic knowledge in the field, and attract talented newcomers.

The Foundation's mission is to provide opportunities and support through education and research endeavors to advance knowledge in the management of the construction process. Its vision is to be the premier foundation supporting education and research in the management of the construction process.

The Foundation's chair for 2011–2012 is Ed Bond, Jr., CCM, FCMAA, LEED® AP, Chief Executive Officer of Bond Brothers, Inc., Everett, MA.

www.cmaafoundation.org

CMAA
Foundation

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