



The VOICE

The official magazine of The Construction Users Roundtable

Fall 2007



Pre-Assembly Perks: Discover Why Modularization Works



INSIDE:

- ConsensusDOCS: From Fragmentation to Collaboration
- National Conference Agenda ● GREAT Completes Over 7,500 Trainings
- Look Up (North) For Labor Answers

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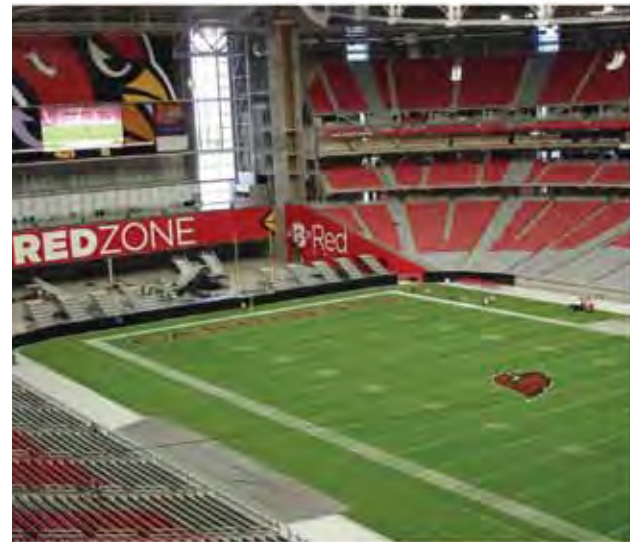
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- 3 ASSOCIATED BUILDERS AND CONTRACTORS**—and ABC's more than 24,000 member firms nationwide that represent every facet of the construction industry — general and specialty contractors, industry professionals and suppliers, as well as owners. Owners turn to ABC to help them keep their competitive edge.

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Building the Future

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On the Cover:

A severe shortage of skilled workers in the construction industry has forced companies to explore other options to get their projects done. One choice that's gaining popularity is preassembly/modularization. Photos courtesy of PCS Purified Phosphates and Jacobs Engineering Group Inc. (first row); Fluor Corporation (second row); and The Shaw Group Inc. (third row).



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2007 REVISIONS
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Revised with input from owners, architects, engineers and contractors, the A201, General Conditions of the Contract for Construction, and nearly 50 owner/contractor, owner/architect, architect/consultant and contractor/subcontractor agreements will be available for purchase or download on November 5. Nearly four years in the making, the 2007 Revisions reflect the state of the industry and our changing times. For more information, visit www.aia.org/docs_voice or call 800-242-3837 today.

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2007 REVISIONS



Bridges That Unite Us

My 82-year old father called me from Florida the other day. "How is it," he asked rhetorically, "that bridges can fall?"

The oldest son of a land surveyor and an accomplished professional draftsman in his own right, my father belongs to that old school that elevated the tedious task of putting a set of architectural and engineering drawings together, one line at a time, to an art form. Whether it is a one hundred year-old pen-on-linen drawing or the subsequent pencil-on-vellum versions that replaced them, if you have ever seen the exquisite work produced by one of these masterful artisans, you would agree that they stand as living testimony of what carefully prepared, well coordinated working drawings should look like. Producing them was time consuming, no doubt, but so was the process of checking and rechecking them before they were issued for construction.

It was not surprising then, to hear my father's angry voice of disbelief at the news of the I-35W bridge collapse in Minneapolis, earlier that day. "Bridges," my father insisted, "are simply not supposed to fall."

I couldn't agree with him more, but the fact remains that this type of event has become too common-place in our industry to the point we hardly take collective notice anymore.

Sure, for a few days, as the rescue effort turned to recovery and the body count continued to rise, we all shared in a sense of outrage. But by now, for most of us far removed from the immediate aftermath of the catastrophe, it is all fading from memory. Of course, we will be briefly reminded of it once again, months from now, when the neatly bound report by the blue-ribbon panel of distinguished professional and community leaders assembled to undertake the required lengthy investigations is published. It will be a well written report, with an extensive list of things and people that went wrong, and the all too familiar set of recommendations.

As such, the report will be a new opportunity for some to point fingers as they proudly proclaim, "I told you so!" Thus, the collapse of a bridge that once united opposite banks of the Great Mississippi will only serve to drive an already highly insular industry further apart.

But for others, the report will be a painful reminder that as long as we continue to look at "projects" as single unique events and their failures as isolated instances without a common thread, the systemic problems that today engulf us all will continue to prevail. Nothing will change, unless and until, we reform ourselves collectively.

Whether it is under-funded or unrealistic project budgets, critical shortages in skilled labor, lack of properly trained and experienced design professionals, incompetent contractors, inadequate coordination among disciplines, or poor quality control, owners, design professionals and builders must work together in a fully integrated and highly collaborative environment to ensure that the end product not only accomplishes its intended purpose, but that it withstands the test of time.

That is one of the primary reasons why I continue to be invested in CURT. From 3XPT to the CURT Tripartite Initiative, to our safety awards, to benchmarking, or to any of the other various initiatives in which we are involved, CURT is committed to bringing the key industry leaders to the table, in order to work together to redefine old models as well as create new ones that will drive the industry forward.

Doing so does not require a nostalgic return to the old days of pen-on-linen drawings. Instead, it requires the assimilation of evolving technologies into new models that will better respond to the demands of an ever faster global business environment. It requires more and better training. It requires full horizontal and vertical integration at all levels of the project team. It requires real time access and information sharing among all participants.

Certainly it is a daunting task that will demand from each of us the same high level of dedication and investment as that of the skilled draftsmen of yesteryear. But, the way I see it, we have no other choice. Because, as a wise man reminded me the other day, bridges, simply, are not supposed to fall.

Ricardo Aparicio, AIA, Esq.
General Electric Company
CURT President

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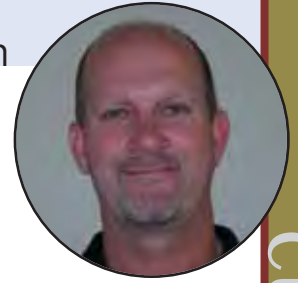
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From Collaboration to Transformation: Solutions For Today's Construction Industry

Are you searching for an opportunity that will provide you with innovative ideas that could transform the way you manage projects?

The 2007 CURT National Conference, held in Naples, FL, November 5-7, at the beautiful and newly enhanced Naples Grande Resort, will be able to satisfy that requirement.

In the ever changing landscape that is the construction industry, the CURT National Conference provides one of the most valuable networking and educational settings possible. It brings together leading owners, designers, contractors and labor leaders to tackle problems and explore solutions that are on the leading edge of our industry.

The construction industry continues to be challenged across a broad range of issues. The development, execution, and closeout of large and complex construction projects will always be fraught with risk and opportunity. Our industry partners, shareholders, business partners and end users expect us to continually improve, year-to-year, providing cost effective solutions that increase the economic profit of the corporation.

Owners, contractors and labor leaders will be in attendance as conference participants and presenters. These construction and corporate leaders, along with industry experts, will drill-down into various data processes, experiences and technology, and provide a vision that will stimulate our thoughts and actions to improve performance.

The National Conference strives to inform and educate attendees from all segments of the construction industry to address key areas of concern in project management by offering innovative solutions to mitigate risk while communicating advancements in tools, technology, and methodologies.

The National Conference Planning Committee is extremely excited to be able to consolidate these many outstanding topics and premier speakers into a two and half day conference, and still provide time to network with peers, sponsors and exhibitors.

The agenda, distributed in early September, details a stimulating cross section of experience and leadership in each area of

expertise. The conference registrations went fast, and if you found you were unable to attend let me touch on some highlights.

The opening speaker for the conference is Ed Merrow, Founder and President of Independent Project Analysis, Inc., the pre-eminent global consulting organization for capital investment projects. CURT member executive speakers include Maggi Walker, Vice President, Dow Chemical Company; Peter Davoren, President and CEO, Turner Construction Company; and Ricardo Aparicio, CURT President from General Electric Company.

Other noted presenters include John Mitchell, Senior Economist from U.S. Bank; Major General Charles E. Williams, Director OBO, U.S. State Department; Ed Hill, IBEW General President; and the newly elected BCTD President, Mark Ayers.

With 18 concurrent educational breakout sessions, attendees will be provided specific details and be able to ask questions in the areas of safety performance, creative contracting agreements, integrated project delivery, BIM, workforce performance, the 3XPT strategy initiative, construction craft training, and LEAN project delivery.

Lastly, there will be an exciting wrap-up to the conference by none other than Sam Donaldson, Veteran Chief Washington correspondent for ABC News.

The annual National Conference continues to demonstrate the commitment of CURT and its members to improving the industry and leading changes crucial for our collective success. Whether in the area of safety, quality, workforce development, technology, education, or project management, CURT has a vision to be on the bow wave of improvement and to communicate that information to our members and industry. The National Conference continues to emphasize present and future direction that can be used to support industry success, as we all resolve to get out of our comfort zones and advance innovative, out-of-the-box solutions to transform the construction industry.

Doug Graham
The Boeing Company
CURT National Conference Chairperson

The CURT National Conference provides one of the most valuable networking and educational settings that brings together leading owners, designers, constructors, and labor to tackle problems and explore solutions that are on the leading edge of our industry.

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Learning From Our Past, Shaping Our Future

I love the vibrancy and excitement of the college campus! Often when Cindy and I are on a trip, and have the time, we will detour to drive around campuses large and small. So for years now, instead of golf or other hobbies, I have chosen to teach a class—one night a week for one semester—to some of the best and brightest college students in Cincinnati.

Recently, I've thought about why I find that activity so appealing and have concluded that aside from keeping up on my own game, construction law, the classroom gives me a chance to provide input and guidance to young adults at the most critical part of their lives. Some of the most dramatic and permanent changes in life usually occur during those years. A person is transformed from a kid living at home and eating at their parent's table, to a full-fledged adult who should be earning a living and taking complete charge of his or her life. Most of the decisions that will shape their next fifty years will be made during this time, including the choice of occupation, perhaps the decision to marry and the establishment of values and principles by which their life will be governed.

What makes this time period even more critical is the impact of early mistakes and errors in judgment. They can undermine all that follows. A bricklayer knows he must be very careful to get his foundation straight; any wobble in the line of bricks at the bottom will create even greater tilts as the wall goes up. So it is in life and in our careers.

I've related that reality many times to organizational development—CURT for example. Our early years are certainly exciting, fun and creative. Our Value Generation Surveys indicate we continue to provide a great value to our members and associates. Our leaders are focused and creative. Our staff is hard working and dedicated. But, as we move forward into our next phase of growth and development, it is absolutely essential that

we are confident in a strong, solid organizational foundation. Just like those college students, if we are to continue to carry out our mission with quality, integrity and a sense of challenge, then what we are doing now will matter most in the future.

Accordingly, each year the Board of Trustees reassesses our foundation building efforts. Is CURT accomplishing its mission? Do CURT members and the industry in general, have a clear understanding of our purpose? Do we have the correct identity in the market? How well has CURT articulated its mission? Is our vision of the future clear and bright? Do we believe that change for the better can be achieved? Are we doing

the right things to get us there? Do we have the right collaborative processes in place? Do we have a comprehensive and ultra challenging Strategic Plan? Do we have metrics in place to assure progress toward goals? All these questions properly answered will be the underpinnings for a fantastic future.

Not only does our organization need periodic evaluating to operate at an optimal level, but our leadership team and scores of volunteers need to be assisted, empowered and recognized for their part in building the foundation. So, as we answer the tough questions, we also want to express our gratitude for the outstanding "construction crew" involved in setting and building CURT's foundation for a bright future. Once again, a bricklayer knows he must be very careful to get his foundation straight; any wobble in the line of bricks at the bottom will create even greater tilts as the wall goes up. As it is in life; so it is in the life of CURT. Thanks to each of you who have helped build this strong foundation.

Gregory Sizemore, Esq.
CURT Executive Vice President

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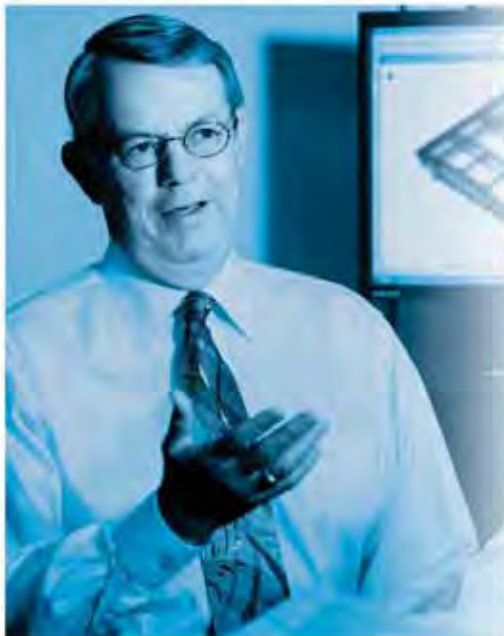
Gregory Sizemore, Esq.
CURT Executive Vice President

ON INTEROPERABILITY

RUBY

CONSTRUCTABILITY "When doing the pricing on a recent project, Douglas Steel Fabricating Corporation asked us to review the job to enhance constructability. It was a community college project that originally called for fully welded moment connections and knee-braced frames. The number of pieces and amount of field welding made the project uneconomical. Douglas Steel sent us the original design documents. We put together an alternative design that satisfied the intents of the owner and architect. We then transferred our CIS/2-

DAVID I. RUBY, P.E., S.E., Structural Engineer, Principal, Ruby & Associates P.C., in Farmington Hills, Michigan. Specializing in steel designs that speed and ease constructability. Recently consulted on a community college project where his design and use of Interoperability resulted in a hyper-fast and efficient design—and a six-figure rebate from the fabricator to the school.



***INTEROPERABILITY** is the ability to manage and communicate electronic product and project data between collaborating firms. It allows the exchange and management of electronic information, where individuals and systems are able to identify, access, and integrate information across multiple systems. The goal of interoperability is to create greater efficiencies by eliminating the manual reentry of data, duplication of business functions, and the continued reliance on paper-based information management systems. The steel design and construction industry uses the CIMSteel (CIS/2) neutral file format to enable interoperability.*

compliant model back to Douglas Steel, enabling them to process the model in SDS/2 so they could bid both the original and alternative designs on time. Without CIS/2 Interoperability — or what used to be called Electronic Data Interchange — we couldn't have turned it around fast enough to keep the job on schedule."

VALUE "The architect's drawings, the site constraints, points of access, equipment — there are so many different things to consider to come up with the most economical product that meets a client's needs. A lot of people talk about value engineering. What that really means is examining a set of decisions that have already been made, and going from there. You're talking inside the envelope. But when you design for constructability and value, outside-the-envelope thinking leads to things like speed to market and achieving budgets. CIS/2 Interoperability is a tool that lets us think like this."

EFFICIENCY "For the community college, the floor beams were spaced at about 3-foot, center-to-center, with a very light metal deck and a reasonably thin slab. As a rough count, we eliminated over 700 members, as well as 11,000 shear studs from the floor system and it was designed so everything could be field bolted. We ended up with a metal deck system and a thicker slab that added a little dead load to the structure, but increased the strength of the composite beams. Basically, we made it easier to build, stronger and much more economical. Plus, we stayed on schedule because the design only took four days thanks to CIS/2 Interoperability."

PERSPECTIVE "Working with Fazlur Khan to design the Hancock Building early in my career gave me a different feel for construction. One thing about the Hancock: the steel out-raced concrete to the roof. In fact, steel was 25 floors ahead at one point! We even had to design temporary braces to keep the structure together because we were so far ahead. Faz was such a great concept engineer. I learned you can't just look at a building as a design — it has to be built too! Piece by piece, stability is an issue during construction. But once it's done, the issue goes away and you let the building act as it should."

COMMUNICATION "The advantage of Interoperability is speed through the elimination of paperwork and many layers of communication. Typically, a detailer

would verbalize a problem to the fabricator who would submit a request for information to the contractor who'd send it to the architect. A response from the structural engineer would be communicated through the contractor to the fabricator and ultimately, back to the detailer. And many times the detailer would respond, 'That's not the question I asked.' This happens time and time again when you're trying to explain a three-dimensional problem in 50 words or less. CIS/2 Interoperability means the pertinent decision-makers — the engineer, detailer and fabricator — can look at the model in real-time, discuss the problem and collaborate on a solution. Better, faster communication is the value of Interoperability."

INTERACTION "With Interoperability, I work with the fabricator and detailer directly. We receive their files over the Internet, pull them into our system, make comments and send them back in just a couple of hours. This saves a tremendous amount of time and keeps us on schedule. Let's say there's a connection issue, or perhaps the fabricator has a question. We're not waiting because the drawings are in the mail. They just send us their three-dimensional models and we solve the problem today. That's what Interoperability is all about."

UNIVERSAL "The files a fabricator works on are generated from the RAM model we send them. So when they pull our models into the system for detailing, they have the most current designs. There is less paperwork to keep track of and that's a significant advantage. If I send files at noon, by 3 o'clock the fabricator has his bill of materials. Manually, this process took a week. And we're not talking just 40 hours — but two or three people putting in 40 hours to pull that all together. Those extra hours are an expense completely eliminated due to Interoperability."

INTEROPERABILITY "The primary reason for Interoperability is to integrate design and construction processes by eliminating the need for manual re-entry of data. The advantage for steel is that the CIS/2 standard enables compliant software—Tekla, SDS/2, Bentley, RAM, FabTrol and others—to exchange data electronically with accuracy and speed. In fact, CIS/2 makes most structural steel design, detailing and manufacturing applications interoperable."

STEEL "Steel already gave us a much quicker delivery time. And that's now clearly enhanced by CIS/2 Interoperability. Steel lets me build a structure that can be modified, easily reinforced, adapted to another use and has overall economy from start to finish. Unless you're building sidewalks, there's never a reason not to use steel."



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Membership Categories

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Any not-for-profit national trade association, research organization, or educational organization that provides services to the industrial or commercial construction industry may be eligible for membership in CURT and submit an application to join, provided they meet the Association Associate Membership requirements established by the Board of Trustees and an opening in this category of membership becomes available.

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- SMACNA (SHEET METAL/AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION)
- TAUC (THE ASSOCIATION OF UNION CONSTRUCTORS)

Challenge: Change Urban Skylines Around the Globe



*The Financial Centre at Bahrain Financial Harbour
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*Palm Towers
Doha, Qatar
(57 Stories)*

*Sky Tower
Abu Dhabi, UAE
(85 Stories)*

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GET TO KNOW CURT

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Publication Name	Price	Quantity	Total
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WP-401 Confronting The Skilled Workforce Shortage	\$ 11.95	_____	_____
R-402 CURT Tripartite Initiative Executive Summary	\$ 11.95	_____	_____
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CURT Comments

Each issue The VOICE asks CURT leaders their thoughts on the major issues affecting the construction industry. Here CURT Officers, Board of Trustee Members and Committee Chairs voice their opinions on pre-assembly/modularization, LEED/environmentally friendly construction, and the importance of the CURT National Conference.

CURT Officers



Ricardo Aparicio, AIA, Esq.
CURT President
GENERAL ELECTRIC COMPANY
Contracts Manager Project Services
Birmingham, AL

"My first direct involvement with CURT was working with the 2002 National Conference Committee under the leadership of Dick Troell. I know from personal experience how much hard work and dedication goes into making sure it continues to be CURT's flagship event of the year. The Board is indebted to the entire CURT staff and the 2007 Committee members for once again putting together what promises to be a highly informative and provocative agenda."

Aparicio is in-house Counsel and Contracts Manager for General Electric's Corporate Properties and Services Operation. Aparicio holds a Bachelor of Architecture and Juris Doctor degrees from the University of Miami, FL and is a certified specialist in Construction Law in the State of Florida, where he holds concurrent professional licenses to practice architecture, interior design, construction and law.



Egon J. Larsen
CURT Vice President
AIR PRODUCTS AND CHEMICALS, INC.
Global Construction Manager
Allentown, PA

"Construction, like all other business ventures, is a changing and competitive market. As such, we need to continue to improve and advance the technology and methods for projects. Moving the work to a more construction friendly environment in a shop or other off site location is a good opportunity to make improvements in schedule, cost, productivity and quality. Modular construction requires earlier planning for the project components and forces the project team to organize and perform the detailed planning earlier in the execution. Better and earlier planning has always improved the project performance and outcome. It allows more time and resources to deal with unexpected problems that occur on every construction project to minimize the impact to the overall outcome."

Larsen is responsible for Air Products and Chemicals, Inc.'s construction activities totaling approximately \$700M annually. This includes locations in the America's, Europe, Asia and the Middle East. With over 25 years of experience in managing projects and construction, he has been instrumental in numerous capital project initiatives and development programs.



Larry Wargo
CURT Treasurer
FIRSTENERGY
Consultant, Contractor Services
Akron, OH

"As the labor shortage continues, the need for alternative solutions is of paramount importance. Modularization is mitigating some of that pressure because anything we can do away from the job site lessens the craft labor that is needed. FirstEnergy has been using modularization for awhile now but as the workforce shortage continues, we're taking a deeper look at it and how it can be even

more successful for us. There is great potential for its increased use. We can and must use modularization more."

Larry Wargo has been with Ohio Edison and FirstEnergy Corp. for over 30 years. Over the years, he has held a number of management positions in fossil generation and, most recently, is a consultant for contractor services. In addition to his duties with FirstEnergy Corp., Wargo serves in a variety of capacities with a number of different associations. These include CURT's Industrial Relations Committee, National Tripartite Committee, Overtime Subcommittee; the Northwest Ohio Great Lakes Construction Alliance; the Boilermaker National Conference Planning Committee; the Ohio Construction Coalition Absenteeism Committee; and judge for the NMAPC Zero Injury Safety Awards Program.



Michael G. Conley
CURT Secretary
DUPONT ENGINEERING
Manager, DuPont Project Engineering Center
Wilmington, DE

"Our National Conference adds value to participants and industry in a number of ways. Some prime examples include our safety and workforce development awards that highlight excellence in these fields, which others can learn from, and in addition, communicates to the industry the value the owner community places in these areas. In the end, this will improve performance in the industry, and that we all will gain from. The conference is also used as means to broadly communicate new tools, methods and key findings. This year, the conference will cover topics such as the use of LEAN technologies in projects, the business value of craft training, and 3XPT, to name a few. All of these can help companies improve their capital process."

Michael G. Conley has over 25 years of construction and engineering management experience. His career has spanned the United States and Europe, and includes construction, design, project controls, project management and business engineering management. He currently manages the DuPont Project Engineering Center, a unique organization whose goal is project execution excellence and the renewal of engineering skills within DuPont.

In 2002, he became DuPont representative to the Construction Users Roundtable (CURT). He has served as co-chair of the CURT open shop subcommittee of the workforce development committee. Conley has also served on the Board of Trustees for the National Center for Construction Education and Research (NCCER).

Board of Trustees



Tom Weise
CURT Past President
INTEL CORP.
Director of Facilities,
Materials & Services
Chandler, AZ

"First and foremost environmental change is sorely needed; we must clean up our global inefficiencies in industrial and commercial related waste. While it is the correct thing to do and an issue my company fully supports, I am worried that political platforms will be formed and may potentially mismanage this worthy cause. The construction industry has an opportunity to get actively involved in the reduction and management of our industrial environmental waste via design, efficient construction methods, etc. This is an emerging issue that the construction industry must get involved with and take a lead on in the areas that we can impact. We must do a lot more."

Tom Weise is currently responsible for the acquisition and supplier management of Intel's global construction business. He has received numerous Intel recognitions such as; "Contribution to Materials Training and Career Development," "Development of Intel's Supplier Continuous Quality Improvement Process," and "Development of the Intel Advanced Total Cost Method."



William P. Tibbitt
JOHNSON & JOHNSON
Executive Director,
Worldwide Engineering Services
New Brunswick, NJ

"Over the years I have attended many CURT National Conferences and I am proud to say that each has been a success. Last year's conference was one of the best, in my opinion, and I am confident that the 2007 event will be even better. I have seen this organization grow and flourish over its lifetime. The success of the Conference each year illustrates the success of the association as a whole."

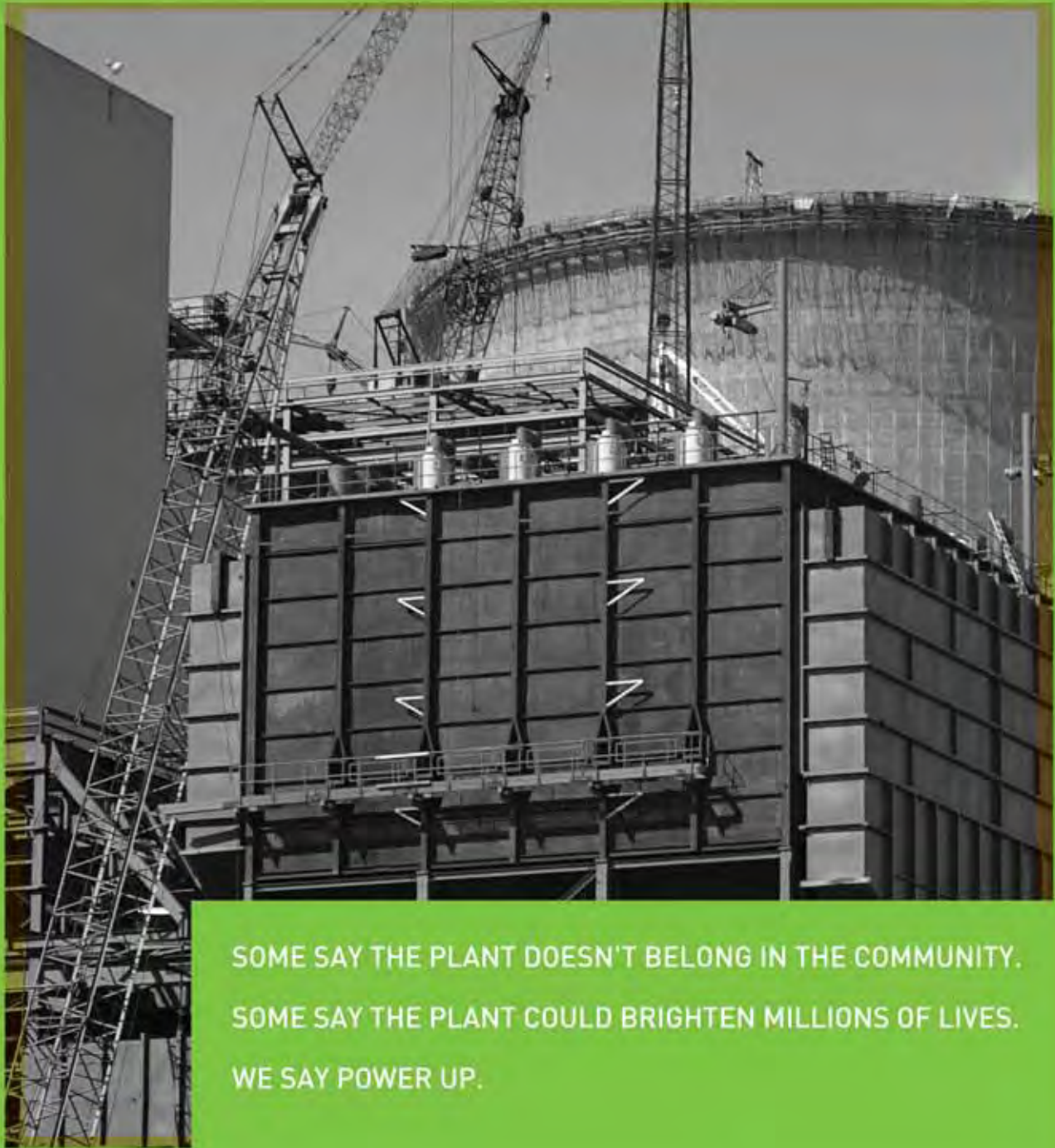
In his present position, Bill Tibbitt and the group he leads are responsible for the project management of all of Johnson & Johnson's major capital projects worldwide. Tibbitt has served CURT in several capacities including President and most recently, as Co-Chair of the 3XPT Strategy Group and Board Member.



Steven B. Satrom
CURT President Emeritus
AIR PRODUCTS AND
CHEMICALS, INC.
Vice President of Engineering,
Energy Businesses
Allentown, PA

"The CURT National Conference is the premier forum in the industry for large construction owners to raise issues, discuss solutions and best practices, celebrate successes, and debate appropriate actions to positively influence the creation of capital assets. It brings together leaders from the owner, service provider and labor communities in a forum directed and sponsored by the ultimate consumer of construction services. Experience has shown that without strong owner leadership, very little of lasting significance has occurred to improve the industry. Continuous improvement is a necessary way of life if we are to prosper in the coming decades."

Satrom was the first President of CURT and one of the eight founding members. He was instrumental in establishing the initial focus for the organization, creating a viable entity and gaining the industry acceptance and recognition necessary for it to become the "Voice of the Owner".



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Allen Bunner
 TYCO INTERNATIONAL
 Director Engineered Systems
 Bath, OH

"The construction industry is faced with inherent challenges of constructability, resources, productivity, safety and legal issues. As an owner we must accept these challenges, and, at the same time balance our costs and scheduling requirements dictated by our employers. This can be daunting for an individual owner without the support of construction focused organizations. The CURT National Conference provides a structure where our common construction challenges can be shared across the industry. It is a focused three day event that enables our divergent industries and responsibilities as owners, labor, design, and the supply chain to communicate and share our insights and expectations that are mutually beneficial to all parties."

Bunner has had more than 30 years of mechanical and electrical contracting background, specializing in fixed fire protection systems, including more than 20 years focused in Special Hazards systems, and 15 years experience with International contracting and exportation of fire protection technologies.



Curtis Ashley Baker, P.E.
 SOUTHERN COMPANY
 GENERATION
 Vice President, Construction
 Birmingham, AL

"The use of modularization and pre-assembly techniques has become a standard in our project planning process. Some of the benefits we have realized are: higher quality through fabrication in a controlled environment; it takes standardization to the next level; it minimizes job site lay-down area; it allows for work to be done on the ground instead of in the air; it enhances job site safety; it utilizes additional labor markets; and it facilitates schedule compliance. We have realized these benefits in ductwork fabrication, skid mounted equipment assemblies, control panels and electrical equipment buildings."

Baker is currently responsible for the implementation of Southern Company Generation's environmental projects in Alabama, Florida and Mississippi, with project estimates totaling approximately \$3 billion. He has twenty-eight years experience in Project Management and Construction in the Utility industry. Baker participates on the CURT Tripartite Initiative and the CURT Katrina Response Committee.



Gregory L. Sizemore, Esq.
 Executive Vice President
 THE CONSTRUCTION
 USERS ROUNDTABLE
 Cincinnati, OH

"Each year CURT conducts a Value Generation Survey to assess the 'return on investment' to our member organizations. Each year we improve and continue to raise expectations for next year. With all our initiatives, there could not be a better time to be involved. If you are an owner and have not yet considered joining CURT, now is the time. Please visit us at www.CURT.org."

Sizemore has over 25 years of construction industry and association management experience. For eighteen years Sizemore has been the Executive Director of the Construction Owners Association of the Tri-State (COATS) in Cincinnati, Ohio, and, in 1989 Sizemore started Sizemore & Company, a construction industry association management and consulting firm.

He was instrumental in the start-up of CURT and has served as the Executive Director since its inception. Sizemore serves on various industry and civic boards including the University of Cincinnati's Industrial Advisory Council, the Advisory Committee to the Albany Technical College, the West Virginia Construction Coalition Conference and the ACE Mentor Board.



Steve Mongiardo
 MERCK & CO., INC.
 Senior Director, Infrastructure,
 Environmental and Office Projects
 Lebanon, NJ

"The industry is starting to pay some attention to sustainability and the environment. Real change is up to the owners, though. They have to recognize the benefit to continue to push sustainability, however, there is still a general perception that it costs more for an environmentally conscious building, which needs to be overcome. It is very important that this happens, though. It sends the right message to consumers. It also provides the owner with a lower overall operating cost for the facility."

Steve Mongiardo has been with Merck & Co., Inc. for 21 years and currently manages projects at domestic Merck sites including West Point, PA, Danville, PA and Albany, GA, Elkton, VA. In his position he is responsible for all major capital utilities/infrastructure projects which support new research and manufacturing facilities. These projects include new power generation facilities, high voltage distribution systems, water treatment facilities, office complexes, site development, parking garages, and chilled water distribution facilities. Steve Mongiardo was elected to the CURT Board in June 2007. He is also Co-Chairman of the Workforce Development and Industrial Relations Committee.

CURT Committee Chairs

Education and Implementation Committee



Patrick Duffy

Chairman
TAMPA ELECTRIC COMPANY
Manager, Project Management
Tampa, FL

"The construction industry is faced with a number of daunting issues which CURT and other industry associations are addressing. These associations are made up of companies and individuals committed to developing solutions to construction's problems. However, progress will be slow without support from a wider representation of our industry. The CURT National Conference is an excellent opportunity to gain this support as industry leaders gather to learn about and discuss the issues, proposed solutions, roles and responsibilities. It is an ideal venue to help build the critical mass of opinion and action needed to accelerate the pace of industry change."

Patrick Duffy has been managing projects at Tampa Electric for seven years and is currently responsible for transmission and distribution projects. Before that, he spent 10 years with a large engineering and construction firm working primarily for the process industries. Duffy has been active with CURT since 2002 and is the Past President of the Florida Construction Users Roundtable (FCURT).



Education and Implementation Committee



Mike Criscitiello

Co-Chairman
PRAXAIR, INC.
Director Global Capital Procurement
Tonawanda, NY

"With the construction industry overheating in many areas, it is very important for both owners and contractors to collaborate to find the best solutions to the problems we face. The CURT National Conference provides an opportunity to put the relevant issues on the table. Construction is a major industry, not only in the United States, but globally. The CURT National Conference provides a forum for construction owners to take a leadership role in shaping the future of the industry."

Michael Criscitiello has over 30 years of engineering, project management, construction and procurement experience at Praxair. His career spans the United States and Asia, including expatriate assignments in Korea and China. Prior to his current role, Criscitiello was responsible for equipment and construction sourcing for global projects. He has been active with CURT since its inception in 2001.

LEAN Construction Committee



Joe P. Gionfriddo

Co-Chairman
PROCTER & GAMBLE COMPANY
Corporate Engineering-Global
Construction Management Process Owner
West Chester, OH

"Benchmarking is a must in today's global work environment. Industry conditions are changing continuously and keep impacting daily life in the business of construction. Learning from each other at events such as the National Conference helps expedite and set the direction of the industry in a more proactive and planned fashion, versus a totally reactive and 'starting from ground zero' mentality. Being proactive as an industry leader is a compelling business advantage and also gives a competitive edge."

For the past 25 years, Gionfriddo has worked across six of the seven global business units within Procter & Gamble, holding various manufacturing and capital management roles. He is viewed as a capital management master in project/construction management, receiving one of their highest technical recognitions, the Procter & Gamble Capital Management Leadership & Mastery Award in 2002.



LEAN Construction Committee



Albert Schwarzkopf

Co-Chairman
MERCK AND CO., INC
Project Engineer Global
Engineering Services Durham, NC

"Construction options such as pre-assembly and modularization allow contractors to take the work to the labor versus taking the labor to the work. This allows use of better tool techniques and methods in the fabrication. Additionally, it allows the use of more consistent practices and procedures which can be developed and streamlined to be more effective and efficient. This also allows the construction industry to apply more LEAN principles during fabrication. Use of LEAN principles will help improve cost schedule safety and quality simultaneously by cutting waste from the construction process, and modularization and pre-assembly both allow for the use of LEAN principles."

Al Schwarzkopf has been with Merck & Co for 12 years and currently manages projects within the SE Region and Latin America for Merck. In his position he is responsible for all capital projects under \$5 million at the new Vaccine Manufacturing Facility in Durham, NC, and some additional projects throughout the Southeast region and Puerto Rico.



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GRANITE

Process Transformation Committee



Charles G. Hardy

Co-Chairman
GENERAL SERVICES ADMINISTRATION, CCM
Director of Construction
Chicago, IL

"The construction industry has embraced the sustainability agenda and it is moving into the mainstream of an owner's expected project outcomes: on-budget, on-schedule, quality, safe and sustainable. In today's environmentally conscious consumer market, building new buildings (or renovating existing ones) in a sustainable way is extremely important. Buildings built in an environmentally responsible manner are not only environmentally friendly but are bottom-line friendly as well: supporting your business case while adding value. Sustainability doesn't have to cost more but we do have to think more about how to do it correctly.

Charles G. Hardy is a registered architect, a certified construction manager and a nominee for the Miles Romney Innovation in Real Property Management. Before joining GSA in 1991, Hardy was an architect with architectural firms in Florida and Illinois practicing in the areas of real estate development and office design. Additionally, Hardy is an officer in the U.S. Air Force Reserve.

Process Transformation Committee



Stephen D. Lane

Co-Chairman
CITIGROUP, INC.
Vice President
Chicago, IL

"At the National Conference we will once again highlight the 3XPT working group, which is focused on creating an efficient development process that maximizes efficiency and minimizes risk to all participants involved. Building Information Modeling (BIM) will be the tool that will enable all parties to collaborate and make critical design decisions early in the project development cycle where all benefit the most. We have a unique opportunity as owners to work with our designers to make sure that we embed sustainable materials in the models and with our builders to identify ways to minimize construction waste and recycle construction materials. There is no reason why we can't be good environmental stewards and save time and money in the process. It will take the knowledge, cooperation and will of all participants but I think that we are up to the challenge."

Stephen Lane is currently the Global Director of Capital Projects for CITI Realty Services, which involves the review and approval of the capital requirements for projects that have budgets of \$10 million and greater. He is an active participant in the Business Roundtable's (BRT) "Climate Resolve" program, the World Resource Institute's "Climate Northeast" work group, and is also a member of Business Roundtable's steering committee on the "S.E.E Change" initiative. Lane has held several operations and management positions during his 30-year career, many that focused on construction, building operations and/or energy efficiency.

Safety Committee



Bob Krzywicki

Chairman
E. I. DUPONT
Contractor Safety Practice
Manager
Wilmington, DE

"Not only does the CURT National Conference bring together all of the critical stakeholders in the construction industry, but it also attracts key leaders and decision makers. This critical mass of stakeholders and leaders has the ability to change the industry if they have the collective will. The National Conference provides the forum and stage for the conversation, interaction and will building, which is necessary for beneficial change. The conference features 'hot topics', which represent the areas where the industry likely needs to change. However, not everyone agrees necessarily on the direction of that change. Bringing this diverse group together allows for the airing of different perspectives and the building of trust necessary for effective and sustainable change."

Bob Krzywicki has 25 years of experience at the DuPont Company specializing in construction and contractor safety issues. As the Manager for this practice for DuPont Safety Resources, Krzywicki leads a specialized consulting practice team and is responsible for marketing, sales, product development and delivery of services to clients worldwide.

Workforce Development and Industrial Relations Committee



Gerry Sprentall

Co-Chairman
INTEL CORPORATION
CSC Operations Construction Manager
Chandler, AZ

"Pre-fabrication/modular construction provides the owner a mitigating strategy to the ever-increasing skilled construction workforce shortage which is currently contributing to higher project costs and longer project schedules in certain regions of the country. The use of pre-fabrication/modular construction methodologies or strategies enable benefits of labor safety, productivity, and quality improvements, offsetting cost escalation while providing schedule opportunities otherwise missed when implementing traditional on-site techniques."

Gerald (Gerry) Sprentall is a Construction Manager for Intel Corporation. He has over twenty six years of industrial construction experience, and began his career in 1981, working in nuclear power, petro/chemical, pharmaceutical, food and beverage, and for the past 12 years, the microelectronic industry. Active in a variety of professional organizations, Sprentall also serves on the NCCER Board of Trustees. He holds a Bachelors Degree in Industrial Construction Management from Colorado State University.

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National Conference Planning Committee



Doug S. Graham

Chairman
THE BOEING COMPANY
Senior Manager Contract
Design & Construction
St. Louis, MO

"The National Conference brings together leaders in the industry to address current and emerging issues and solutions. It also facilitates the peer to peer relationships that are so important when trying to implement best practices in your own organization. There is no better way to discuss the 'hot topics' of the day, than a face-to-face forum such as this one."

Doug Graham is a Senior Manager with the Boeing Company and has been employed with them for over 20 years. He currently manages a union and salaried staff, is responsible for approximately 30 buildings that cover 2.5 million square feet, and also oversees plant engineering, contracted design and construction, fire protection engineering, and utilities management activities for all Boeing's St. Louis facilities. Graham holds a bachelors degree in Civil Engineering from Washington University in St. Louis and an MBA from Fontbonne University.

National Conference Planning Committee



Jocelyn Scott

Vice Chairman
DUPONT
Director of DuPont Capital Asset Productivity
Wilmington, DE

"I attend the CURT National Conference to look for that new perspective or insight that I can take back and apply to make my organization more effective. The mix of perspectives of labor, contractors and owners at the conference gives it a balance that reflects the interrelationships that are needed to have a successful project delivery operation. The conference format is designed to encourage the sharing of information, which is the key to CURT—learn some, share some. I hope you will find the conference to be a continually improving event."

Jocelyn Scott joined DuPont in 1984 where she has held numerous positions in engineering, operations and R&D. Prior to her current position she served as Director of DuPont Engineering Research and Technology. She has also held the roles of Executive Assistant to the Chairman & CEO, Business Engineering Manager for DuPont Teijin Films joint venture and Planning Manager for DuPont Engineering.

Scott is active in industry organizations including the Construction Users Roundtable. She has served on engineering education advisory boards for the University of Delaware, M.I.T., Penn State, the University of Michigan and local boards in support of minority engineering education. ●

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Pre-Assembly Perks:

Discover Why Modularization Works

What happens if you need to build a factory in Louisiana but skilled labor is in short supply? Wait, that's not an "if" ...that's a reality.

So, what can you do?

Using pre-assembly building practices is one answer to the skilled workforce shortage. And, as Wayne A. Crew, Executive Director of the Construction Industry Institute (CII) explains, it's an answer that is becoming more well-known across the country. "Modular has always been used in the oil and gas industries in the U.S.," says Crew. "However, now more than ever there are certain benefits and drivers in place that are increasing its use in other industrial sectors, too. These include a lack of skilled labor, scheduling pressure, safety concerns, environmental/regulatory constraints, unique site attributes and cost saving opportunities."

Crew says that the use of pre-assembly has definitely increased in the past 10 to 15 years, especially with new technologies such as building information modeling (BIM), and Internet design capabilities. In fact, CII has developed their own online design tool which allows owners to assess how beneficial the use of pre-assembly would be on their own projects. Owners are asked to input information such as equipment size and weights, layout drawings, and logistics/transportation planning costs, which can help them to understand potential issues, as well as estimate timelines.

"The tool makes it easier for project coordinators to understand all the issues when using pre-assembly, ahead of time," says Crew. "The program looks at all the different factors for each individual project and can give some guidance as to what direction a project should go. It doesn't

have all the answers but it does help users make a rational, well-informed decision."

This is especially helpful because, as Crew puts it, "The world lives in a stick-built paradigm where decisions can be made and changed well into the project." He cautions though that when using pre-assembly, up-front planning and solid decision-making is essential for its success. "If owners are delaying decisions until last minute or changing their minds, pre-assembly won't be successful. There is definitely an increased requirement for front-end decision making and decreased flexibility for design changes later in the project."

Sean Rooney, Global Director of Construction Services for Fluor Corporation says there are many reasons why pre-assembly is a good choice for owners. For Fluor in particular, a company which has designed, fabricated and installed



Photos courtesy of Fluor Corporation, PCS Purified Phosphates, and Jacobs Engineering Group Inc.

Pre-assembly approach	Conventional stick-built
Dependent on engineering completing entire modules and preassemblies.	Engineering driven by completing entire project; it doesn't need to obey the rules of gravity.
Modular operations only dependent on: <ul style="list-style-type: none"> Fabrication yard and preassembly area mobilization Material availability 	Constrained by the normal sequence of site preparations, underground and foundation works, equipment installation, and so on.
Modularization execution means: <ul style="list-style-type: none"> Working with building blocks Working in vertical commodity slices within the building block 	Stick-built execution allows: <ul style="list-style-type: none"> Larger work areas/fronts Working horizontally
Requires early (partial) material releases and deliveries. Late materials can shut down the assembly line.	Allows for "working around" by scheduling trades people to areas with material availability.
Inflexible fabrication yard schedules and sequencing can slow down operations.	There is some schedule flexibility which allows for the ability to move work fronts to accommodate late materials.

Information courtesy of Sean Rooney's presentation at the CURT Pre-assembly and Modularization workshop in Boston, September 2007.

hundreds of modularized projects since the 1970s, Rooney says, "The decision to modularize has been influenced by resource availability, climate, site access, quality control, local labor costs, scheduling and other execution factors. Many projects today are impacted by scarce labor resources and escalating labor and material costs, so the modular approach option is frequently considered as an alternative to traditional stick-built approaches."

In the past five years alone, Fluor has executed over 30 projects using a modular construction approach. "And we are seeing an increasing demand for modular construction for many of our projects that are now in the early planning phases," says Rooney.

He explains that the decision regarding modular feasibility and the extent to

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Modular makes sense for commercial projects, too

While pre-assembly has been used in the industrial sector for decades, it is relatively new to the commercial construction industry. Laurie Robert, Vice President of Sales and Marketing for Modular Building Specialists, a company which offers modular solutions to clients through the United States and Canada, says, "The modular building industry has gained substantial ground during the past decade or so, with the continued development of more sophisticated designs and applications. The continued growth of our industry and its capabilities, the diversity in builders and locations, and the overall advancement in design and construction technology gives owners, architects and contractors the ability to explore a construction option that can help them execute a better project."

Steve Sickman, Director of Marketing for Ramtech Building Systems—a modular builder that has been providing solutions to educational institutions, healthcare providers, Fortune 500 companies and government agencies for 25 years, says it's time to look at the facts. He explains, "Modular construction is faster, often cutting timelines in half because the manufacturing of the building and the site preparation takes place concurrently, it is often less expensive because a shorter overall construction timeframe substantially reduces on-site costs, and many metropolitan areas have high prevailing wage rates, resulting in higher costs when all of the work is done on-site."

Even with so many positive attributes, there still remains some myths about modular construction. Paul Lewandowski, Director of Sales for Modular Building Specialists says that while some still think modules are nothing more than big boxes, that is simply not true. "The industry has come a long way and most any type of application in commercial construction, from a 2,000 square foot convenience store to a 60,000 square foot or larger school, hospital or office building, is possible. Obviously large voluminous spaces with wide-open floor plans can be more difficult to design structurally, but you would be surprised what is possible. Modular doesn't just mean boxes anymore."



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which it is used should be made very early in the project concept/strategy phase. “Executing a modular project (versus a conventional stick-built project) tangibly effects all of the major aspects of project delivery including, cash flow, preliminary and detailed design, procurement, construction and start-up. For example, decisions will need to be made much earlier in the project lifecycle, and project leadership at the shop is really vital in order to ensure that all the project objectives are met.”

Pre-assembly case file

Paul Hochi, Manager of Project Development for Jacobs Engineering Group Inc.—one of the world’s largest and most diverse providers of professional technical services—agrees that pre-assembly is an option that owners should explore. Hochi should know. He has been involved in numerous pre-assembly driven projects, with positive results.

He points to benefits such as, “Schedule acceleration from doing more work in parallel (shop and field), mitigation of craft labor shortages, and addressing site construction challenges (such as long permitting times, hazardous environments or construction near operating units).”

Advantages such as these, notes Hochi, have increased the profile of pre-assembly. He explains that, “Several years ago, we used to see pockets of labor shortages in the U.S. Today, however, labor shortages are much more widespread because older craft workers are retiring and are not being replaced with a similar number of younger people, and the ‘hurricane effect’ from Rita and Katrina is taking labor away from constructing industrial projects to focus on hurricane rebuilding efforts. Most industries use modularization or pre-assembly in some form. But now, if they haven’t been using modular, they’re starting to look at it.”

One project Jacobs was involved with is the construction of two purified phosphoric acid plants in Aurora, NC.

Both were built with significant modular content in Jacobs’ modular fabrication shop in Charleston, SC. Hochi says that market opportunity required the plant for PCS Purified Phosphates be operational in 18-months and a conventional stick-built schedule would have taken 24. Additionally, the site was remote with limited craft availability and a large amount of the construction was going to be done at high-elevations (up to 140 feet high).

The solution that made sense to both PCS and Jacobs was pre-assembly. There were 32 modular units (15 by 15 by 60 feet, on average) barge-transported to the site in 3 separate shipments. Modularization supplemented the local craft labor force by executing 175,000 hours in a shop environment. Shaving six months off any construction schedule is no easy feat. This one however, was finished on-time with four months saved as a result of modularization, and two months saved as a result of integrated delivery.

These savings are impressive, as there was minimized disruption to the adjacent manufacturing.

As PCS Project Manager Dennis Grieve explains, “The turnkey approach, utilizing the three facets of engineering, modular construction, and field construction was probably the only way that we could have a plant that was operational on time, of very high quality, and one that we could start up with minimal difficulties.”

Hochi cautions that, “To be optimally effective, modularization needs to be looked at upfront, preferably during the pre-conceptual or early conceptual design phase. Also, the sequence of engineering, procurement and construction is different on a modular project. A higher number of activities occur in the front-end of the project because equipment and other components are procured earlier than they would be in traditional construction.”

As the workforce shortage continues to bring modularization to the forefront, it is easy to see why companies are

Deciphering the lingo

Wayne A. Crew, Executive Director of the Construction Industry Institute (CII), says that while modular has been around for a long time in the oil and gas industries, it now seems to be gaining more and more recognition in other sectors. In order to make sense of the different terminology, CII developed **PPMOF: Prefabrication, Pre-assembly, Modularization, and Off-Site Fabrication.**

Pre-fabrication: This is a manufacturing process, generally taking place at a specialized facility, in which various materials are joined to form a component part of a final installation. Pre-fabrication is a common practice on most industrial projects today.

Pre-assembly: This is a process by which various materials, prefabricated components, and/or equipment, are joined together by different crafts at a remote location for subsequent installation as a sub-unit. It is generally focused on a system. Pre-assembly also is a common practice on most industrial projects today.

Modularization: A module is a major section of a plant resulting from a series of remote assembly operations and may include portions of many systems. It is usually the largest transportable unit or component of a facility.

Off-Site fabrication: The practice of preassembly or fabrication of components both off the site and on site at a location other than the final point of installation.

jumping on the bandwagon. Pre-assembly perks such as reduced construction time, decreased costs and increased safety have all contributed to this method’s popularity, and while many companies have used this construction method for decades, others are quickly realizing the full spectrum of benefits. ●



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Go green. It's the catch-phrase of 2007 and chances are, it'll stick around for 2008 too.

No longer the way of the hippy, to be green is now to be hip.

Politicians worldwide are jumping on the bandwagon (painted green of course). This past spring leaders from the eight leading industrialized countries in the world trekked to Germany to figure out how to lessen their nation's environmental footprint. Along with discussions on missile defense and poverty, the G8 countries committed to cutting global CO2 emissions by 2050.

Leading the cause closer to home, Al Gore, former Vice-President, has propelled the issue into the media spotlight—and therefore the world's spotlight—with his documentary *An Inconvenient Truth*. Even Hollywood is getting involved. Stars are trading in their Hummers, opting instead to zip around in fuel-saving hybrids. And, on the infamous night of glitz and glam, the

Oscars went green too. Supplies, transportation, even the traditional red-carpet, all had a green flair.

While Hollywood is well-known for its fickle nature—tossing aside the latest craze as soon as it becomes even the slightest bit passé—concern for the environment seems to be gaining momentum in Tinsel Town and beyond. In the construction industry, that momentum has led to the adoption of sustainable practices by companies large and small. Everyone seems to be jumping on board; designers, architects, suppliers, contractors and owners.

"It is impossible to not be more aware of society's concern for the environment," says Ashley Katz, Communications Coordinator for the U.S. Green Building Council. "But beyond just looking good to their clients, companies are realizing that building with

Did you know?

To earn LEED certification, a building project must meet certain prerequisites and performance benchmarks (credits) within each category. Projects are awarded Silver, Gold or Platinum certification depending on the number of credits they achieve. **For more information:**

The U.S. Green Building Council:
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environmentally friendly practices makes good sense economically too."

The U.S. Green Building Council (USGBC) is a non-profit organization with a very clear mission: to transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible,

LEED Gold certified, Toyota Motor Sales South Campus Headquarters in Torrance, CA, is expected to use 94 percent less potable water than a conventional building, saving 11 million gallons of potable water/\$12,000 annually.

healthy, and prosperous environment that improves the quality of life. This lofty goal is being achieved through the promotion and use of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System™. This benchmark for the design, construction and operation of high performance green buildings gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance.

"As interest in sustainability and energy efficiency grow, so too does the interest in LEED," points out Katz. "In 2002 we had just over 30 LEED certified projects. Now that number is up past 900, with over 8,000 projects waiting to be recognized."

Contributing to these numbers are developments completed or under development by Turner Construction, a

national leader in planning, building and delivering projects. They have certified over 40 LEED projects and have 70 others currently on the go. In total, they have finished or have under contract over 210 green buildings (buildings built with sustainable aspects but are not necessarily LEED certified), to the tune of \$13.2 Billion. **Billion!**

Rod Wille, Senior Vice President, Manager of Sustainable Construction, Turner Construction, has seen first-hand how building green is now turning into the kind of green that can be taken all the way to the bank. For example, the first LEED Gold certified high rise residential project, which Turner completed in New York, was so successful that the owners have now asked Turner to build two additional green projects on adjacent sites.

The original project, called Solaire, is a 27-storey, 357,000 square foot tower. Completed in 2003, its 293 units were designed to consume 35 percent less energy, reduce peak demand for electricity by 65 percent and require 50 percent less potable water than a conventional, residential high-rise building. Not to mention, more than 93 percent of the construction waste for the project was recycled.

"Clients are becoming more aware of the benefits they can achieve by building green and so they're asking for it more and more," Wille says. And it's not just in one segment of the industry either. "Our market sectors include commercial office buildings, educational facilities, healthcare, sports venues, aviation buildings and more. We are seeing interest in green buildings from all these markets and that interest just keeps growing." In 2006 over 20 percent of Turner's overall sales volume was "green", up from 17 percent the year before.

For Turner, it's more than the money though. The company was interested in being environmentally responsible long before society deemed it necessary. Wille says, "After some research and the first of our national green building surveys in 2004, it became apparent to us that green building design was the clear future

An owner's obligation

According to Lois Grobert, Sustainable Real Estate Operations Manager for Citi, owners are increasingly committed to what she calls the triple bottom line: people, planet and profit. She says, "By integrating social and environmental strategies, companies can lessen their negative impact on the environment, reduce their utility costs, create healthier workplaces, and attract the best talent."

That's exactly what this CURT member is doing. With 95 million square feet of real estate worldwide, Citi views building green as a significant opportunity to reduce its carbon footprint and influence others to do the same.

Grobert says that not only are their significant cost savings—she points to case studies that have found that integrating environmental design solutions can help companies achieve between \$0.50 to \$1.00/square foot/year operating cost reductions—but it is, more importantly, beneficial to employees.

Over the next 10 years Citi will commit \$8.7 Billion to achieve LEED ratings at all their U.S. offices. Already this year, they've earned LEED certification for their new Dallas, TX campus, "And a 15-story skyscraper in New York City is targeted to achieve a LEED Gold rating as well," says Grobert.

of architecture in the U.S., not a fad, but a long-term movement."

Why less is more

For General Motor's Lansing Delta Township Assembly Plant, located in Lansing MI, outputting less waste is all about doing more for the environment. The plant, which received LEED Gold certification in August 2006, is the only automotive manufacturing plant in the world—as well as one of the largest and most complex manufacturing sites—to be certified.



Turner Construction's Solaire project achieved LEED Gold in 2003. It featured high-performance casement windows, programmable digital thermostats in each suite, Energy Star fixtures, occupancy sensors and daylight sensors to further optimize energy use. Photo courtesy of Turner Construction.



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"This was the first automotive manufacturing plant to achieve a LEED certification at any level," points out Lawrence Bliss, AIA, LEED AP, GM Worldwide Facilities. "Many of the requirements that must be met to achieve LEED certification are practices and procedures that we do on a daily basis as part of our common systems. Certification was just a new step on the path toward sustainability."

Sustainability and savings. The numbers don't lie.

- Water use has been reduced by 45 percent, saving over 4.1 million gallons of water annually.
- Rainwater is collected from the roof, based on a cutting-edge roof drain system. It is then stored in cisterns above

rest rooms and used instead of potable water to flush toilets.

- Energy efficiency was designed into every system, resulting in energy costs that are 45 percent lower than industry standards, with a projected savings of \$1 million per year.
- The 1.5 million square foot highly reflective white roof reduces heat absorption, resulting in reduced costs to cool the building.

Bliss says that savings like this, in terms of both cost and "savings" for the environment, make LEED certification a very worthwhile endeavor. "Good environmental decisions in the design and construction of our facilities are also good business decisions. If you can create a facility that costs less to operate, provides a better environment for the

employees and reduces negative impact on our environment, few would argue that this is the right approach to take."

And, while this project was a first for GM, it will most certainly not be the last. "We consider LEED as we approach each individual project. Yet, regardless of whether or not a project is going for LEED certification, we are constantly taking actions to reduce the impact of our facilities and processes on the environment. We may not always seek LEED certification, but we will always construct our facilities to be environmentally sound, for the benefit of our employees, our customers and the environment as a whole."

"Along with all these benefits comes the satisfaction of being a good environmental steward within the community," says Bliss. ●

Caterpillar's commitment

Caterpillar Inc. is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines, and much more. Did you also know that Caterpillar is heavily committed to sustainable building practices? Handy Truitt, CAT's CURT Representative, explains why:

Q Why has it been important for Caterpillar Inc. to become a leader in this area?

A For Caterpillar, sustainable development is the business of solving the world's problems with more value and less impact. We believe that a focus on sustainability—energy efficiency, fewer emissions and more renewable resources—can yield parallel economic benefits. At Cat, sustainability begins in our own operations. Our sustainable building policy is one way we focus on our overall operational efficiency improvements.

Q Caterpillar is also very focused on developing products and practices that use less fuel, lower emissions and lessen the effect on the environment. Why is there an emphasis on this?

A Caterpillar leaders have included sustainable development as a core component of our strategy for the future. Jim Owens, Caterpillar Chairman and CEO, has said, "Enabling development is at the heart of our business and we are excited by the business opportunities supporting sustainable development presents. We are implementing a comprehensive, coherent strategy to leverage core strengths, technologies, capabilities and experiences to pursue sustainable development as a driver of profitable growth."

Q Has Caterpillar achieved LEED certification on any projects?

A We became intimately familiar with LEED when we targeted the new

Caterpillar Visitor Center in Illinois to be LEED Platinum. This project is currently at the juncture of the design development and construction documents phase.

Q What benefits does being green have on the company?

A For us, sustainability goes hand in hand with leadership—in our industry, with our products and our operations and with our customers. It is a growth driver for our business and by leveraging our core strengths, we can enable solutions that improve the quality of life while protecting people and the environment. We take our role of environmental steward very seriously and have long incorporated a dedication to a clean and safe environment as part of our Worldwide Code of Conduct.

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What's the problem?

A systemic labor shortage occurs when the overall number of new job openings exceeds the number of qualified new entrants in a national economy for a sustained period of time. Complete labor shortages like this spread across a wide range of occupations and skill groups. Historically, this kind of shortage is triggered by a defining change in the state of the nation, such as transitioning from wartime to peacetime or widespread health problems or, as in the current case, mass retirements.

If the U.S. economy continues to grow at three percent per year—the economy's consistent average since 1948—the workforce will have to increase by 58 million employees over the next three decades. Yet, if the current population trend continues, the number of workers will only increase by 23 million. This trend will create an overall U.S. labor shortage of 35 million workers. Most of these projected shortages are expected to involve workers with specific skills.

Not all economists agree with the theory of a systemic labor shortage for the nation. However, the shortage of skilled workers for the construction industry is a reality. According to the Bureau of Labor Statistics, one million skilled workers will be needed to fill construction jobs by 2012. Specifically, construction contractors have noticed a shortage of craft workers, particularly carpenters, electricians, pipe fitters, welders and laborers. The Construction Labor Research Council (CLRC) suggests the shortage mainly consists of a lack of training for workers. In other words, the emphasis is on the shortage of workers with the skills necessary to perform the job well, not head counts. There are not enough *qualified* workers to satisfy the demand. In addition, employment projections data indicate construction employment will increase 15.1 percent over the 2002 to 2012 period.

For years, we've been hearing about the shortage of skilled workers in the

By Christie S. Wigginton, CT,
and Dede Hughes, IOM

Where Are All the Women?

As the gap between baby boomers and entrants of college-educated workers widens due to the boomers' mass retirements, some predict that a systemic labor shortage will transform the workplace over the next 25 to 30 years. Whether the entire workforce will face a shortage remains to be seen but the skilled labor shortage that already exists in the construction industry will definitely continue to grow. Organizations like the National Association of Women in Construction (NAWIC) know there's a problem. That's why they are working toward a solution.

continued on page 42

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construction industry. In 1997, a program called Workforce 2000 brought attention to the issue, and ten years later, we are still talking about it! The question remains: What are we doing about it?

Building the future

As the workforce slowly reaches the age of retirement, it is important to increase awareness of the industry and present its viable career opportunities. Because of the looming labor shortage, construction industry associations like NAWIC are encouraging women to enter the profession. Nationwide, companies have taken the lead in supporting their female employees by sponsoring them to be a part of groups like NAWIC.

When it comes to educating young people about the industry, the key is to first focus on educating guidance counselors, teachers and parents. Many skilled trades are providing programs at all education

levels to help in the recruiting process. The Department of Transportation's Construction Career Days is a wonderful example of how the industry is being brought to the forefront and presented to those seeking alternatives to traditional employment.

New programs are in place to assist students in learning. The "If I had a Hammer" program, created by Perry Wilson, was designed to help increase math skills in fifth-grade students by giving them hands-on experience. Working with schools and local organizations, students build an 8' x 11' house. Projects like this build a strong foundation for the students and debunk the myth, "I won't need math in the real world."

NAWIC has several programs to help combat the problem as well. NAWIC's Education Foundation (NEF) sponsors a Block-Kids competition at the grade-school level. Not only does the competition stimulate an awareness of the construction

industry, but it also stimulates young minds without utilizing computers or television. The program allows children to be satisfied by using their own skills to envision a future world.

NEF also utilizes its CAD/Design/Drafting competition and Building-Design program to convey the construction industry in a positive light, which allows NAWIC to address its goal of introducing the industry to young people before they graduate from high school.

Several of NAWIC's partners are also introducing construction to young people, and chapters are very involved with these national programs. Several years ago, Construction Career Days, sponsored by the Federal Highway Administration, was unveiled to NAWIC chapters. Since then, it has really taken off. In many states, programs wouldn't exist if it weren't for NAWIC chapters. NAWIC members and chapters are either implementing or helping with the majority of these successful programs.

Another NAWIC partner, the ACE Mentoring Program, uses skilled people in the industry to mentor and teach young people about the industry. This highly successful program allows chapter members to help introduce construction to young people who are making decisions about their career paths. What a rewarding way to give back to the industry! Many NAWIC chapters are conducting programs with local Girl Scout Councils. The Sacramento, CA, chapter has had great success and would love for its program to take off around the country.

Paxton/Patterson is another partner of NAWIC whose successful building program is actually taught in high school as a vocational program. Unfortunately, over the last decade, many high schools have entirely eliminated vocational programs. They are discovering this is a huge disadvantage to students who are not college bound. The Paxton/Patterson Building Skills program provides hands-on situations to help students learn skills that will lead to great careers in the industry. Many NAWIC chapters are also involved with these programs.

The stats

While the number of women in construction has grown, it still lags far behind that of men. As of December 31, 2005, an average of 882,000 women were employed in the industry, compared with 6,395,000 men. Here is an overview of women in the U.S. workforce:

- **Women comprised 46 percent of the total U.S. labor force and are projected to account for 47 percent of the labor force in 2014.**
- **Women are projected to account for 51 percent of the increase in total labor force growth between 2004 and 2014.**
- **In 2006, a record 67 million women were employed in the U.S.—75 percent of employed women worked on full-time jobs, while 25 percent worked on a part-time basis.**
- **The largest percentage of employed women (38 percent) worked in management, professional, and related occupations; 34 percent worked in sales and office occupations; 20 percent in service occupations; 6 percent in production, transportation, and material moving occupations; and 1 percent in natural resources, construction, and maintenance occupations.**
- **Women accounted for 51 percent of all workers in the high-paying management, professional, and related occupations. They outnumbered men in such occupations as financial managers; human resource managers; education administrators; medical and health services managers; accountants and auditors; budget analysts; property, real estate, and social and community association managers; preschool, kindergarten, elementary, middle, and secondary school teachers; physical therapists; and registered nurses.**

Source: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, 2006 Annual Averages and the Monthly Labor Review, November 2005.

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MAGIC Camp—Mentoring a Girl in Construction—is a new program that started this year. Two women in the NAVIC Sugar Loaf, GA., Chapter, Diane Quimby and Renee Connor, with the help of other Atlanta, GA and Sugar Loaf Chapter members, conducted the very first MAGIC Camp in June 2007. The young ladies in the class were instructed in electrical, carpentry, welding and many other hands-on applications. They welded their names on plates, made table lamps, and built a toolbox— all in one week! At the graduation ceremony, each camper shared how the experience had benefited her personally. The camp took place at a local technical school, and many of the school's teachers and staff participated in the event. This program received funding from local businesses and construction companies. It is our hope that this "camp" becomes a success throughout the country. What a phenomenal idea!

Partnering for success

Women are instrumental in solving the shortage problem, and the industry needs women to step up and replace those retiring or leaving the industry. Currently, women make up only 12 percent of the construction industry. With so many great programs all over the United States, it's apparent NAVIC members and its partners are doing everything in their power to help with the workforce shortage. NAVIC is not equipped to offer training at a higher level, but it is certainly capable of teaching young people that construction is a career-worthy, viable industry.

Volunteering in such programs has become a priority to many companies in the industry. Presently, the looming shortage is obvious nation-wide, and companies know they must participate in programs like these to ensure a strong future workforce. Construction professionals must work together because the world depends on the building industry, and we must all be a part of the process to educate our

youth. What's more, a career in construction offers employees a vast range of opportunities while working to shape the architecture of our communities. What could be better than that? ●

Christie S. Wigginton, CIT, is a business analyst at Oldcastle Architectural Inc. in Veradale, WA. She has been employed in the construction industry for almost 25 years. Wigginton has been a member of NAVIC since 1994 and served as its 2006-2007 National President.

Dede Hughes, IOM, is NAVIC's Executive Vice President, where she has worked for 12 years. Founded in Fort Worth, TX, in 1955, the National Association of Women in Construction (NAVIC) serves more than 5,500 members in nearly 180 chapters across the United States. NAVIC's Core Purpose is, "To enhance the success of women in the construction industry."

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**By Joseph Grynbaum, P.E.,
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In her hit song "What's love got to do with it?" Tina Turner compared love to "A second hand emotion" and "A sweet old fashioned notion". She was, of course, speaking about love as her emotional reaction to an important interpersonal relationship.

In this article, with apologies to Tina, I will explore the importance of trust within a construction project contractual relationship. This perspective will enable me to introduce several relationship-based project delivery strategies that have evolved to counteract the adversarial and often litigious disruptions that the construction industry continues to face. These strategies provide management with the necessary tools to instill and maintain trust and commitment throughout the project process, and thereby avoid costly and disruptive disputes. Successful examples have already delivered breakthrough results in cost saving and early project completion.

Short on trust, long on litigation

Those of us working in today's construction industry know that, in general, the industry to its detriment is short on trust and long on litigation. We often reflect nostalgically on the past when a handshake or pledge was a bond and commitment to honor an agreement. The principal of trust is today too quickly dismissed as an old fashioned notion. However even the old-timers must recognize that new times redefine the context in which we make and honor agreements.

In my opinion one symptom of the problem is that there are people in the industry that remain convinced that the business relationship can be fully defined by the contract. And presumably if the contract language is ironclad, lawyers and managers should easily resolve any disputes by referring to the words in the contract. Unfortunately the high incidence of intractable contractual disputes flies in the face of this wisdom.

My experience tells me that the contract does not fully define the dynamic project team relationship, which is constantly

changing and encompasses critical human factors including trust and commitment. Conflict in a complex relationship is similar to the grit and dirt that surrounds us in our daily lives. Without the constant application of a flushing or cleansing agent this dirt will quickly accumulate and ultimately require a scraper or chisel to remove it. The most effective cleansing agent for a relationship is communication and trust. This is true for any relationship, and no less important for a complex contractual relationship during the execution of a lengthy construction project.

Business conflict risk survey

The notion of trust in any relationship is complex. It has many layers of meaning and it is often difficult to understand its relevance to the construction project, which is essentially a business relationship. To help me in my work as a dispute avoidance consultant, I use a diagnostic questionnaire as a tool to elicit answers from company decision-makers. This helps me to better understand the quality of the business relationship they are

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●●● What's Trust Got to do With it? Continued

engaged in. *My Business Conflict Risk Survey* © is designed to highlight potential problem areas where a company may encounter disputes on a construction project.

Because I consider trust to be an important criterion of the health of a business relationship, I include it in the survey. Typical questions on the 'trust quotient' part of the survey include:

- What is your company's policy regarding the relevance of trust in the business relationship?
- How trust is developed and maintained during selling of the job, contractual negotiations, project release, work execution, work close-out, etc?
- Who in your organization is responsible to monitor trust levels?
- Has initial trust been established at CEO level, operations manager level, etc?

By applying a 0 to 10 ranking to each answer given I arrive at an overall empirical dispute risk quotient; where 10 represents the highest likelihood that the company or project will encounter a contractual dispute. With this prediction in hand, and a clearer understanding of where the communication and structural weaknesses apply, it becomes much easier for management to prioritize its corrective strategies to get both its team and the project back on track.

Trust is a human phenomenon

Trust is an intensely emotional and human phenomenon. It is bound up with past experience both directly with the person(s) concerned and indirectly through projected or anticipated experiences. All our important relationships involve us in interactions and communications that are initially prefaced by the question 'can we trust' this person (or organization or manager or boss or spouse), based on our individual experiences and beliefs. This human need presents us with a dilemma, which we all bring to our business relationships.

In the construction project example, if

we as participants "do the right thing" and place our trust in other team players we expect that they will respond in kind and protect our investment in the project. Similarly if we are dealing with somebody we perceive as "shifty" we expect or trust that they will take advantage. This may result in preemptive action or precautions being taken. Either way our reactions may be inappropriate or our communications flawed.

The building and maintaining of trust is most important to an ongoing relationship because it is at the core of how each party perceives the other. One often hears the statement "trust must be earned" when questions of trust are raised. Our society has a tendency to begin a relationship with a healthy dose of skepticism, and some measure of cynicism, depending on past experience and cultural characteristics. We view those that enter a business situation and express trust and commitment as naive and immature. Our legal contracts are usually created from the premise of distrust.

Don Moore, in a viewpoint article in ENR Magazine (May 15, 2000), expressed it best when he compared a typical contract to a prenuptial agreement which essentially states, "We hereby enter into an arrangement, which neither of us believes will work very long, necessitating the exhaustive terms and conditions presented herewith."

It is easy to see how we might often sow the seeds of our own destruction by adopting this attitude, because the managers are subsequently handicapped in their efforts toward building and maintaining trust among the project participants. When the written contract itself establishes a pattern of distrust, the relationship between the parties must suffer and communications are flawed from the outset. This will occur despite all the good intentions by management to establish a common mission and productive atmosphere among the front-line participants.

Commitment to a common goal

In order for project teams to establish

strong cooperation bonds among themselves, they must first agree on a measure of trust to generate commitment and constructive dialogue. Commitment to a common goal is the proof of this trust.

Commitment also means that each participant takes the trust unto themselves and, "lives up to" the spirit of the project team relationship and the project goal. They must ultimately commit their personal pride to, "do the right thing", according to the pre-defined project parameters including manpower, schedule and profit objectives.

Management must therefore accept as its primary responsibility the task of establishing and maintaining loyalty and commitment within its organization and within the project team. This necessitates trust between the project team members. If trust is broken, or not firmly established to begin with, as in the contract agreement from which everything flows, confidence wanes and this often leads to excessive requests for information, scope extras, ongoing disputes and counterclaims. This phenomenon is well known to those people involved in claims and dispute resolution because it is a recurring theme in mediations and facilitated problem solving sessions.

Construction industry enters new millennium

As the construction industry enters a new critical labor shortage phase it is taking steps to recognize the importance of positive relationships as essential to the success of a project. Partnering and the project alliance approach to creating a non-adversarial contractual relationship acknowledges how critical trust is to establishing the cross-team relationship. An alliance is an organizational structure that encourages constructive dialogue to occur by empowering team members to feel unimpeded to dispute issues and resolve differences when they surface. The building and maintenance of trust between individuals is critical to enable this active communication to continue throughout the duration of the alliance relationship.

My impression is that the construction

industry has for some time recognized the need to adopt an intelligent approach to remedy the litigious knee-jerk reactions that have plagued it for so long. The industry has in recent years moved toward a number of relationship-based proactive approaches, including the use of partnering techniques. In the private construction sector the initial experience with partnering has been mixed, although a definite step in the right direction.

Criticism of partnering approach

The major criticism is that the initial 1-2 day facilitated partnering session does not have a lasting effect. Within a relatively short time one or more of the team members do not live up to their commitment pledges and the group resolve diminishes. Another criticism is that because the team has been brought together under a low price competitive selection process, each of the members is predisposed to protect its hard won position, despite the good intentions of the

collaborative partnering concept.

It is my prediction that the next major evolutionary step for the construction industry will be project alliancing. Although both methods offer much that is attractive to the owner, the service provider and the equipment/material providers too, it is the alliance approach that embraces a whole cross-team relationship built on trust, commitment and constant reinforcement throughout the duration of the project. It also encompasses a well defined monetary risk reward process that encourages all parties to benefit from a better than satisfactory project completion.

Project alliance is a flexible tool

Alliances when entered into with an open-mind provide a flexible tool for creating agility in response to the diversity in skills, work culture and business practices that characterize cross-team relationships. By applying a shared risk and reward structure from the outset of the project relationship, the project can be managed to

achieve extraordinary results, unencumbered by costly and sometimes crippling disputes.

The more typical adversarial and lowest cost provider mentality is eliminated because the team is created based only on member qualifications and commitment to the project delivery process. A working group then proceeds to work together, utilizing the best resources from each of the participants, to establish the scope of the work, a target price for the project and its best delivery schedule. The team building and alliance relationship is sustained throughout the project with the help of an independent facilitator.

The use of partnering and project alliances as proactive relationship building processes are grounded in lessons learned from solving disputes using non-legal alternative dispute resolution techniques. Business leaders will agree that early intervention is the most effective way to diffuse or 'cool' conflicts in order to avoid out-and-out disputes.

Trust and good communication are interchangeable

By establishing and maintaining trust between contracted parties we effectively intervene not only at the earliest opportunity, but also throughout the period of the relationship to diffuse conflicts by maintaining open communication. Therefore trust has everything to do with achieving a successful project when it involves a multi-disciplined team undertaking a complex construction job in today's and tomorrow's construction industry. ●

Joseph Grynbaum has 30 years of experience in international engineering design, project management, project development and fast-track construction in the utility and private power generation industry. He is the founder and principal of Mediation Resolution International, LLC, a firm providing value added dispute resolution and engineering management consulting services for owners, developers, lenders and contractors.

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ConsensusDOCS: From Fragmentation to Collaboration



**By Bill Ernstrom, The Walsh Group and
Kevin F. Peartree, Ernstrom & Dreste, LLP**

Construction has long been a fragmented process separated into disciplines of design, fabrication, construction and operation. This fragmentation has been both a strength and a weakness of the industry. The modern construction project would not be possible without the specialization and expertise required for each stage in the design and construction process. And this specialization and expertise would not be possible without an alphabet soup of industry associations, representing owners, designers, contractors, subcontractors and other parties critical to process, developing higher standards of performance and professionalism among their members.

Unfortunately, the fragmentation of the design and construction process has too long been coupled with an often adversarial ethos; a zero-sum approach that focused on lowest cost and risk shedding. Add to this the transactional nature of most construction, with project participants working together once and rarely again. Finally, binding all of this together are contractual models that reinforce this fragmented, self-protective approach to the business of construction.

continued on page 51

For more information:

ConsensusDOCS: www.ConsensusDOCS.org

CURT's contribution

The Construction Users Roundtable (CURT) was heavily involved with the creation of ConsensusDOCS. One of CURT's representatives during negotiations, Teresa Magnus, worked alongside CURT President Ricardo Aparicio to give the perspectives, concerns and positions of CURT's owner members. Here is what she has to say about the new initiative:

"The problem with many of the standard documents in the market today is that a single organization drafted the documents without the participation and representation of the many different perspectives in the industry. The ConsensusDOCS initiative invited all sectors of the industry to the table to fairly negotiate the contents of each of the contracts.

Representing such a wide sweep of the industry, many more perspectives were heard and taken into consideration when drafting the documents. Unlike a typical unilateral or bilateral contract negotiation, the process of developing the ConsensusDOCS involved all concerned parties at once. The multi-party participation reflects more accurately the make-up of our projects.

With today's market conditions, most owners are searching for new, more creative contracting strategies. The ConsensusDOCS initiative, having involved such a wide range of industry participants, has produced contract documents that contain some of these emerging ideas such as the multi-party, collaborative agreement. In addition, the documents have considered the greatest concerns of the contracting parties and included language and concepts to address those concerns while maintaining protections for all parties."

The documents were released on September 28, 2007 and were available for purchase that same day. Members of CURT can use the promotional code CURT100 to receive savings on purchases made through the website bookstore.

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The alphabet soup of standard forms

Standard form contract documents have long been the vehicle by which competing industry associations advocate for their members and seek to strike a better balance among the interests that compete on a construction project. The market place of competing standard forms has bettered the construction process by educating construction consumers about critical issues of risk and promoting a discussion of best practices. As some associations and their documents have evolved, they have attempted to strike a better balance of all industry interests, with some associations realizing that goal better than others.

Still, the taint of bias, rightly or wrongly, follows many standard forms generated by a particular industry association. The competing forms have left too many who participate in the construction industry confused and uncertain of what documents best express the best practices and risk allocation.

The ConsensusDOCS process

Rather than trying to select a contract form from the alphabet soup of association forms, owners now have a new choice: ConsensusDOCS. The very name seeks to promote consensus among designers, owners, contractors and subcontractors/sureties. The Summer 2007 issue of *The VOICE* announced the ConsensusDOCS initiative and identified the 20 associations now involved, including CURT. What ConsensusDOCS represents is an unprecedented coming together of 20 major construction-related associations to create standard forms that—through consensus—balance and promote best practices among all parties to the construction project. At a time when technological advances are driving greater collaboration among parties who own, design and construct a project, leading associations representing most of those same constituencies have collaborated to create a comprehensive

catalogue of over 70 construction contracts and forms for a variety of project delivery methods and contractual approaches. Released in September of this year, these industry consensus documents signal what could be a transformational moment for the industry as a whole.

The ConsensusDOCS drafting process brought together representatives of all of the participants who tackled each of the myriad of issues with the mindset of best practices, fair risk allocation and the best interest of the project, and moving the overall industry toward that goal. Each standard form document created has been presented to each participating organization for a vote of endorsement. Only contract documents which achieve multiple endorsements by ConsensusDOCS members will be published as a ConsensusDOCS document, bearing the logo of each endorsing association. A participating association that does not affirmatively endorse a contract document will not have its logo appear on that contract document.

While all have had an equal seat at the drafting table, there are three different levels of participation among the ConsensusDOCS associations, depending upon commitment to sales promotion and the contribution of intellectual property from an existing contract documents program. An association can participate in ConsensusDOCS as an endorser without revenue sharing, an endorser with revenue sharing, or as a sponsor. All participating associations will participate in educational and marketing efforts. A sponsoring association, in addition to the promotional and marketing efforts required of endorsing associations, contributes intellectual capital in the form of existing standard forms that provide the baseline from which the ConsensusDOCS have been developed. Sponsoring associations have voluntarily agreed not to publish, sell or distribute construction contract documents contributed to the ConsensusDOCS effort. Sponsoring

associations participate in revenues based not only on marketing efforts but on the intellectual capital contributed.

Those participating associations who have their own contract documents programs are not required to discontinue those programs. They may continue to develop, produce, and promote competing and/or non-consensus contracts and supplements within the bounds of copyright law. But, sponsors must discontinue publishing their contracts documents which are exclusively contributed to and accepted by the ConsensusDOCS effort. For example, the Associated General Contractors of America (AGC), for their part, will not publish and sell equivalent AGC contracts for those documents that are endorsed, published and sold by ConsensusDOCS.

The ConsensusDOCS catalogue will include more than 70 contracts and standard forms. The contract forms include both long and short-form documents for a variety of project delivery methods and compensation approaches. The administrative forms, for instance, include pay applications, change orders, submittal form and bond forms. The principal contracts include:

- Consensus 200 Standard Agreement and General Conditions Between Owner and Contractor (Where the Contract Price is Lump Sum);
- Consensus 200.2 Electronic Communications Protocol Addendum;
- Consensus 240 Standard Agreement Between Owner and Architect/Engineer;
- Consensus 300 Standard Form of Tri-Party Agreement for Collaborative Project Delivery, an agreement signed by an owner, designer and constructor promoting integration of efforts and lean construction principles;
- Consensus 410 Standard Design-Build Agreement and General Conditions Between Owner and Design-Builder (Where the Basis of Payment is the Cost of the Work Plus a Fee With a Guaranteed Maximum Price);
- Consensus 500 Standard Agreement and General Conditions Between Owner and Construction Manager

(Where the Basis of Payment is a Guaranteed Maximum Price); and

- Consensus 750 Standard Agreement Between Contractor and Subcontractor.

The ConsensusDOCS are being published using the DocuBuilder contract document software previously developed and used by the AGC and will be available through an electronic commerce internet site where the documents can be purchased individually or in packaged subscriptions. In addition, participating associations will provide promotional links to the ConsensusDOCS site.

In achieving consensus on the full portfolio of ConsensusDOCS, the participating associations had to tackle a number of contentious and divisive issues. One thing that made consensus possible on these issues was the commitment of the group to publish a guidebook that provides commentary on critical provisions from the perspective of different participants. This guidebook will also be available from the ConsensusDOCS website.

What ConsensusDOCS means for owners

ConsensusDOCS gives owners a choice not available before; standard form documents that represent the perspective of not one group, but the collaboration and consensus of diverse construction industry associations. For owners, construction is a necessity, but not their true business. A contract form that has been drafted and vetted by representatives of diverse industry groups, including owners, provides owners with an assurance that their interests are reflected in the document and balanced along with those of the other project participants. Owners should enjoy savings in time and transactional costs associated with negotiating agreements. Agreements that reflect the concerns of owners, and balance the interest of all the parties by looking to the best interest of the project as a whole, should also create fewer claims, timely completion and better pricing for construction services.

The ConsensusDOCS contracts are integrated, meaning the general conditions and agreement are all contained in one document, with the general conditions tailored to the project delivery and compensation methods. Also, the documents contained in each series are coordinated to ensure their compatibility. Subcontract documents were drafted to ensure compatibility with the prime agreements and a consistently fair allocation of risk.

The standard forms created by the ConsensusDOCS process address all of the typical issues of concern for project participants—time, delays, payment, differing site conditions, warranty, correction of work, indemnification, insurance, termination and dispute resolution. The ConsensusDOCS inform each party of both its rights and obligations, identify critical and sometimes contentious issues and promote discussion among the parties as to how best address them, and allocate risk and responsibilities fairly. Several issues may be particularly noteworthy to owners:

- **Dispute mitigation:** The ConsensusDOCS seek to eliminate disputes before they can become claims by encouraging dispute mitigation and resolution through mediation, project neutrals and dispute review boards.
- **Limited mutual waiver of consequential damages:** The ConsensusDOCS provide for a waiver of consequential damages, but also prompt the parties to discuss appropriate limitations on this waiver by identifying specific items of potential damages that can be excluded from the waiver.
- **Ownership of design documents:** The ConsensusDOCS contain a thorough treatment of this often contentious issue, including a mechanism for the owner to secure ownership of the copyright in the documents through additional compensation to the designer. Also addressed are the conditions for the

use of documents in the event of a termination and on subsequent projects.

- **Additional insured status:** One of the biggest challenges tackled by the drafters of the ConsensusDOCS was trying to balance the competing interests of project participants on the heated issue of additional insured coverage. The balancing of interests achieved by the drafters begins by identifying the issue head-on and then providing the parties with optional approaches to discuss and select, including for example whether an owner will require additional liability coverage at all and if so whether it will be satisfied through additional insured status under a contractor's CGL policy for either ongoing or completed operations, or through an Owner's and Contractor's Protective (OCP) Liability policy.

ConsensusDOCS has also addressed the issue of electronic communications in a written protocol through which the parties address the methods, mechanisms and expectations for the exchange of information and documentation electronically.

ConsensusDOCS represents a watershed event in the construction industry. Not only will more standard form documents follow, but the ConsensusDOCS group will hopefully grow to include more industry groups, particularly designer associations that were invited but declined to participate in the ConsensusDOCS process. The goal of ConsensusDOCS will continue to be to pursue a more proactive and collaborative path toward improving the industry as a whole in areas in addition to balanced, best practices contract documents. ●

J. William Ernstrom, Esq., is Vice President, Strategic Major Project Advisor for The Walsh Group. Kevin F. Peartree, Esq., is a partner with Ernstrom & Drete, LLP. Both are long-time participants in the AGC's contract documents programs and were involved in the ConsensusDOCS drafting process.



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Toyota Motor Manufacturing

THE COMPANY:

Toyota Motor Manufacturing, North America

THE HISTORY:

Toyoda, as the company was first named, was established in 1937 when Toyoda Automatic Loom created a new division devoted to the production of automobiles under the direction of the founder's son, Kiichiro Toyoda.

According to a much-quoted article in Wikipedia, the spelling change was made to make it easier to pronounce, symbolize a separation from the founder's home life, and, possibly most importantly, because Toyota, which takes eight strokes to write in Japanese, is considered to be luckier than Toyoda.

THE RIGHT-NOW:

In April 2007 Toyota received top honors, claiming the crown as the world's top automaker. The company announced that their worldwide sales reached 2.35 million cars and trucks in the first quarter of the year. In order to meet demand, Toyota Motor Manufacturing North America, Inc.

and Toyota Technical Center consolidated in 2006 to form Toyota Motor Engineering & Manufacturing North America, Inc. (TEMA).

TEMA is responsible for Toyota's North American engineering design and development, research and development, and growing manufacturing activities in the United States, Canada and Mexico. The company currently operates 13 vehicle, engine and parts plants in North America and will open a second plant at Toyota Motor Manufacturing Canada in Woodstock, Ontario in 2008. By 2010, Toyota will begin production of the Highlander at its new vehicle assembly plant in Blue Springs, Mississippi, near Tupelo by 2010.

Annual purchasing of parts, materials, goods and services from North American suppliers totaled more than \$29 billion.

THE FUTURE:

With steady demand for Toyota's product—the company produced more than 1.55 million vehicles and 1.4 million engines at its North American manufacturing facilities in 2006—growth is the only option. After all, projections indicate that the company will have to build nearly 2.2 million cars and trucks in North America in 2008 to meet demand.

THE SOCIAL COMMITMENT:

In January 2007 Toyota Motor Sales (TMS) U.S.A., Inc. announced its *Think Green!* program, which achieves a high recycling rate and zero waste to landfill at TMS headquarters.

"*Think Green!* reduces the impact TMS headquarters has on our environment by creating resources from waste," said Bob Pitts, TMS Group Vice President of Administrative Services. "Toyota Motor Sales is committed to its Global Earth Charter and will continue to expand initiatives to protect our environment."

With more than 5,000 employees, business partners and visitors in 15 buildings on the TMS headquarters each

day, it has become important to find new ways to reduce and recycle waste. *Think Green!* enables TMS to divert waste from landfills and avoid the emission of approximately 1,000 tons of green house gases each year.

In the first three quarters of 2006, TMS diverted 615 tons of materials from landfill—equivalent to the weight of 420 Toyota Prius hybrids. By January 2007, TMS reached a new milestone of zero waste to landfill.

THE AWARDS:

- In March 2007 the U.S. Environmental Protection Agency awarded TEMA with a 2007 ENERGY STAR Sustained Excellence Award in recognition of its continued leadership in protecting the environment through energy efficiency.
- In July 6, Toyota's North American Production Support Center (NAPSC) in Georgetown, KY, was awarded a Silver Level Certification from the U.S. Green Building Council's (USGBC) Leadership in Energy & Environmental Design (LEED) Green Building rating system.

THE FACTS:

- **Direct North American Employment:** 38,340
- **Direct North American Investment:** \$16,854,600
- **Cumulative North American Production:** 14,872,312
- **North American Vehicle Sales:** 2,513,708
- **Cumulative North American Vehicle Sales:** 39,258,162
- **North American Purchasing*:** \$26,100,000,000
- **North American Toyota, Scion and Lexus Dealers:** 1,745
- **Total U.S. Philanthropy (since 1991):** \$301,000,000

All data as of December 2005, except where noted. All figures are reported in U.S. dollars. *Parts, Materials and Components (FY ending 3/05) Goods and Services (CY 2004) ●



Toyota's headquarters in Torrance, CA, diverts over 600 tons of materials from the landfill, thanks to their innovative *Think Green!* program.

2007 NATIONAL CONFERENCE AGENDA

From Collaboration
to Transformation:
Solutions for Today's
Construction Industry



MONDAY, NOVEMBER 5

2:00 pm – 5:00 pm **Opening Session**—Doug Graham, The Boeing Company, Conference Chairperson
A Global Industry in Crisis: A Perspective From IPA—Ed Merrow, President, Independent Project Analysis
Technology, Innovation and the People Who Make it Work: A New View on Solutions for the Construction Industry—Maggi Walker, Vice President, Dow Chemical Company
CURT: How Owners are Transforming the Industry Through Effective Leadership & Collaboration—Ricardo Aparicio, General Electric Company, CURT President

6:30 pm **Welcome Reception/Dinner (Casual Attire)**

TUESDAY, NOVEMBER 6

7:30 am – 12:30 pm **Opening Session**—Doug Graham, The Boeing Company, Conference Chairperson
Into 2008: What's Next For the Economy?—John Mitchell, Principle, M&H Economic Consultants
What The Organized Trades Are Doing To Staff Our Projects: An Example From The IBEW—Newly Elected Mark Ayers BCTD President; Ed Hill, IBEW General President
3XPT Strategy Group: Different Teams, Different Jerseys, One Game—Bill Tibbitt, Executive Director Worldwide Engineering Services, Johnson & Johnson; Doug Pruitt, Chairman & CEO, Sundt Construction; Barbara Price, Principal, Jacobs



Concurrent Educational Sessions (Presented twice before lunch)

- Realities & Remedies For the Construction Workforce Crisis
- Keys to Improving Safety Performance: The Best in Class From Award Winning Owners
- Creative Contracting: Highlights of the ConsensusDOCS Collaborative Agreements
- Moving Toward Integrated Project Delivery: BIM Usage Assessment & Case Study
- FMI 2007 Owners Comprehensive Survey: The Envelope Please . . .

12:30 pm **Lunch**

1:30 pm – 4:30 pm **From Collaboration to Transformation: A Contractor's Perspective**—Peter Davoren, President & CEO, Turner Construction Co.

Leading Change in Construction: The U.S. State Department's Strategy—Major General Charles E. Williams, Director OBO, U.S. State Department

Concurrent Educational Sessions

- Continuing The Conversation . . . More Workforce Remedies For a Changing Industry
- Recent Legal Developments Affecting Project Delivery
- Improving Productivity Through Effective Resource Management
- Keys to Improving Safety Performance: Best in Class From Award Winning Contractors
- Successful Collaborative Agreements and the Projects That Worked

6:00 pm **Awards Gala Reception**

7:00 pm **Awards Gala Dinner & Ceremony (Business Attire)**

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The Construction Users Roundtable reserves the right to make changes in Conference sessions and/or speakers when conditions prevail beyond its control. Information distributed or contained in presentations is the sole responsibility of each presenter and does not necessarily represent the opinions of The Construction Users Roundtable or its membership..

2007 NATIONAL CONFERENCE EXHIBITORS

- THE CONSTRUCTION USERS ROUNDTABLE WOULD LIKE TO THANK THE FOLLOWING FIRMS AND ORGANIZATIONS FOR THEIR SUPPORT OF CURT AND THE 2007 NATIONAL CONFERENCE OF CONSTRUCTION OWNERS:
- ABC NATIONAL
 - AGC OF AMERICA
 - AIA CONTRACT DOCUMENTS
 - AISC
 - AUTODESK
 - BAC/INT'L MASONRY INSTITUTE
 - BCTD
 - BENTLEY SYSTEMS
 - BIGGE CRANE & RIGGING CO.
 - BRANDENBURG INDUSTRIAL
 - CERTIFIED OCCUPATIONAL SAFETY SPECIALISTS
 - DBO2, INC.
 - DISA
 - E-BUILDER
 - HILL INTERNATIONAL
 - IMPACT
 - INDUSTIRALINFO RESOURCES
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 - NECA-IBEW NLMCC
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 - NORTHSTAR CONSULTING
 - PAINTERS & ALLIED TRADES LMCI
 - SATELLIER
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 - STORM EXCHANGE, INC.
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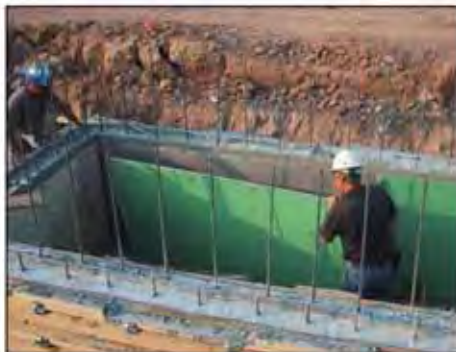


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WEDNESDAY, NOVEMBER 7

8:00 am – 2:30 pm **Opening Session**—Doug Graham, The Boeing Company, Conference Chairperson

Construction Craft Training: Generating Big Cost Savings For Owners—Ric Carter, President Fluor; Paul Goodrum, Associate Professor, University of Kentucky; Joby Frame, Construction Logistics Manager, Southern Company; Randy Tomlinson, Senior Piping Engineering Technologist, Dow

LEAN Projects From an Owner Perspective: Lessons Learned—Jerry Theis, Group Manager, WFG Capital Projects, General Motors; Harold Helland, Manager of Project Management, Abbott; Egon Larsen, Global Construction Manager, Air Products

Concurrent Educational Sessions

- **Legal Issues in a Collaborative Environment: What You Don't Know May Hurt You!**
- **Technology That Results in Better Projects**
- **Integrated Form of Agreement: A Relational Contracting Style That Works**

Sam Donaldson Looks at Leadership—Sam Donaldson, Veteran Chief Washington Correspondent, ABC News

Closing Remarks—Doug Graham, The Boeing Company, Conference Chairperson

Farewell Luncheon

2:30 pm – 4:30 pm **CURT Committee Meetings (Members & Invited Guests Only)**

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The CURT Tripartite Initiative

Communication and commitment are key outcomes

More than four years ago a group of forward-thinking individuals and their respective organizations came together to form what is now known as the Construction Users Roundtable Tripartite Initiative (CTI); an endeavor that strived to join owners, unions and contractors who sought, "Attainable, measurable, and meaningful" ways to improve the North American construction industry.

Represented were the Construction Users Roundtable (CURT), national contractors' associations, and the presidents of unions affiliated with the Building and Construction Trades Department, AFL-CIO, a coalition of construction unions.

Then President of CURT, Bill Tibbitt, said at the time, "There are tremendous untapped opportunities for owners, contractors and labor to collaborate. I am very encouraged at this first step to do so."

Now, several years later, the dedicated CTI team is still working to improve the construction industry. One member of this team, Michael Gossman, Executive Vice President of P1 Group, Inc., has been involved since the beginning...almost. Six months after CTI formed, he was elected President of the Mechanical Contractors Association of

America (MCAA) and at the time felt the CTI effort, "Provided a unique opportunity to work both with the owners and labor toward the advancement of the industry."

That belief hasn't changed. He's proud of the work CTI has accomplished, noting that it is the only national tripartite effort that brings together a large owner's group, all of the building trades unions and the contractor trade associations. "The CTI has raised the level of communications between the groups," he says. "This, in of itself, is an improvement."

Gossman credits all the groups involved for making the initiative work, noting that having CURT spearhead the formation of CTI helped get it off the ground. From there they were able to set the stage, adopting the mission, "To improve the construction industry through meaningful dialogue, collaboration and mutual commitment to positive change with owners, contractors and building and construction trades unions."

Edward Sullivan, Past President of the Building Construction Trades Department (Sullivan retired October 1, 2007) was also instrumental in getting CTI off the ground. He recalls meeting with individuals such as Greg Sizemore and Robert Volkman, who both represented CURT, to establish a mutually beneficial

relationship. "Everyone talking to each other in a collaborative manner was a first for the industry," says Sullivan.

Recalling the first meeting, Sullivan jokes that they've, "Come a long way. It was definitely *interesting* in the beginning but I am so proud of where we've come from and what we've done. We grew trust in an environment where trust wasn't always readily found and as such, we are now able to work as a team to address the really important issues our industry faces."

The first three initiatives CTI tackled were workplace disruptions, absenteeism and excessive overtime. White papers have been written and published by CURT for these three efforts. Since then, the group has engaged in improving workplace attitudes with a new training module, launched a national drug testing program, developed productivity demonstration projects and published a report on Project Stakeholders Responsibilities.

"If we work as a team we, simply put, work better," says Sullivan. "If we have everyone sitting at the table together, more ideas flow—what worked for others, what didn't work—the construction industry belongs to all of us. As such it's up to all of us to work together to make it successful." ●

BCTD President Sullivan retires

Edward Sullivan began his career in 1964 in the elevator trade as a probationary helper in IUEC Local Union #4 in Boston, MA. He worked as a construction mechanic and an adjuster in maintenance for 17 years. In 1981, he was elected Business Manager of Local #4, and he served in that capacity until he was elected Assistant to the General President of the IUEC in 1996. He was elected General President of the union in 1998. He also chaired the Board of

Elevator Regulators in Massachusetts for 10 years. In 1997 he received the Gompers-Murray-Meany Award, the top honor awarded each year by the Massachusetts AFL-CIO.

Of his successful career, Sullivan says, "I started in this business over 40 years ago. At each stage of my career...as a working member and as an elected leader at many levels...everything I've ever undertaken was done through the eyes of being a local member. That's where

continued on page 63

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my roots are, and that's where they will always be."

CURT would like to thank Edward Sullivan for his dedication to initiatives such as CTI, as well as his effort to improve the construction industry as a whole.

BCTD Elects New President

Mark Ayers, Director of the Construction and Maintenance Department of the International Brotherhood of Electrical Workers (IBEW) was elected as the new President of the Building & Construction Trades Department, AFL-CIO (BCTD). Ayers, who will succeed retiring BCTD President Edward C. Sullivan on October 1, was confirmed during a September 6 meeting of the BCTD Governing Board of Presidents.

"I look forward to addressing the challenges and seizing the opportunities that present themselves to the union construction industry," said Ayers. "I want to thank the Governing Board of Presidents for bestowing their

confidence in me and, with the assistance of Secretary-Treasurer Sean McGarvey, I will do all that I can to enhance our stature as the world's number one choice for quality, skilled labor in the construction industry."

Prior to his tenure as the Director of the IBEW Construction and Maintenance Division, Ayers was the Business Manager and Financial Secretary for IBEW Local 34 in Peoria, Illinois. Ayers served as co-founder and chairman of the Central Illinois Chapter of NECA-IBEW Local 34 Quality Connection, and was the Secretary-Treasurer of the West Central Illinois Building & Construction Trades Council.

Ayers attended the George Meany Institute for Labor Studies (now known as the National Labor College), the University of Wisconsin, the University of Illinois Institute of Labor and Industrial Relations, and the International Foundation for Employee Benefits. Mark has also served his country in the United States Navy. ●

Do YOU Have Something to Say?



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We are looking for articles that are industry specific (not company promotional) to include in future issues of this magazine. If you'd like to lend your expertise on the industry's hot button issues, we'd like to have you. The VOICE is currently looking for:

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If you're interested, send your ideas or finished articles to The VOICE's Editor Shannon Lutter, at editor@matrixgroupinc.net. All articles are subject to approval and editing by the Construction Users Roundtable and the editorial team.

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ABC/CURT Partnership Thrives

Gary Bennett, Corporate Relations Director for TIC Holdings, Inc., ICC (Industrial Contractors Council) Chairman and ABC National Representative to CURT gives insight into the council's activities, goals and purpose

Q When the ICC was first formed in the late 1980s, what were its original goals?

A Associated Builders and Contractor's (ABC) Industrial Contractors Council (ICC) was first formed, primarily due to ABC's close relationship with the Construction Committee of the Business Roundtable (BRT). Because of the nature of industrial construction projects, refineries and power plants, for example, industrial owners typically are demanding in areas such as safety, quality and productivity, and the ICC was a step to ensure that ABC contractor members were addressing and meeting those needs.

Q Decades later, how has your mandate changed as the construction industry has changed?

A Now in 2007, we find ourselves concerned about the workforce shortage and workforce development. One of the main differences is that the construction industry, along with many of our owner clients, are now feeling the impact of the shrinking labor force that was predicted years ago. Workforce development is a primary shared concern of CURT and the ICC, and it is apparent that those contractors who can produce a qualified workforce will do the work for CURT owner members.

The construction labor force is not keeping pace with the current demand for a number of reasons. Some of these are an aging workforce, attractiveness

of high tech and similar occupations to many young people, a negative perception of construction, a lack of knowledge about construction opportunities on the part of high school counselors, a lack of knowledge about income potential in construction, etc.

Realizing that the ICC cannot solve, or even address, all of these issues that impact the construction labor force, we are concentrating our efforts in the areas where we can be most effective, and supporting organizations that are working in other areas. For instance, the National Center for Construction Education and Research (NCCER) has a developing initiative to address the image of construction as a career. The ICC is looking for ways to build support for this initiative.

Q ICC has a close relationship with NCCER. Why is it important to work alongside a training program?

A In the early 1990s ABC raised funds, primarily from its industrial contractor members, for revision and standardization of the ABC Wheels of Learning curricula. Those same contractors also contributed the copyrights to their craft training curricula to ABC in five key areas; electrical, instrumentation, millwright, welding and plumbing. Members of the ICC facilitated the revisions and standardization of the training, and developed a centralized program and curriculum. To facilitate the training of thousands of new craft workers that would be needed each year, ABC established the NCCER as a separate

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nonprofit organization in 1996. Although the NCCER was formed as an organization independent of ABC, our members remain as strong supporters today.

We recognize that the craft employees of one company today will be part of the workforce of another company in the future. As participants in the NCCER training program, those employees can continue their training and get credit no matter where they are employed, so long as their employers, or the training center at which they receive instruction, are users of the NCCER curriculum and employ NCCER-certified trainers.

Q Why is it important to work alongside CURT on major issues such as workforce development?

A CURT encompasses many of the primary users of the industrial construction sector of our industry, so its members understand the issues and interests of industrial contractors.

When it comes to industrial construction and maintenance, we don't believe that either the owners or the contractors can have much impact in areas such as workforce development without the cooperation and support of the other. However, through a partnership between industrial owners and contractors, challenges such as workforce development, safety, process improvements and others can be tackled and accomplished.

We view CURT as a key to our success going forward.

Q What are some of ICC's goals for the upcoming years?

A At present, we have one overriding goal: the development and implementation of an action plan to recruit, train, place and retain new people to the construction industry. ●



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Construction Institute emphasizes education, sharing of knowledge and access to industry leaders

Focus on owners

From its beginning, the Institute recognized the paramount need to recruit and retain owner/user members if it was to accomplish its mission of bringing together **all** elements of the building industry. More than 10 years ago it established its Facilities Management Council, an advisory group within the Institute comprising professionals who have responsibility for the planning, management, engineering, construction, operations and maintenance of a company's or institution's capital assets. Council members represent all industry sectors such as corporate, manufacturing, hospital/healthcare, pharmaceutical, institutional, retail, municipalities and state agencies. Its main purpose is to improve the quality and cost effectiveness of construction and the many tasks associated with facilities management.

The Council serves as vehicle to bring together and promote greater communication between the purchasing side of the industry with its numerous service providers. In addition, the Council is a forum and network for construction and facilities professionals to interact with their peers, and to share information, ideas, concerns and interests through roundtable discussions, conferences and subcommittees.

For further information on the Construction Institute please visit their web site at www.construction.org or you can contact Dr. William Cianci at (860) 768-4459.

What began as a noble experiment has evolved into an unqualified success.

That is the consensus among Connecticut's construction leaders on the Construction Institute, a non-profit, non-partisan professional association that is a division of the University of Hartford. The Institute was born in, and in response to lean times for the construction industry in the state during the mid-1970s.

By its nature, the building and construction community is a loosely structured coalition of varied professions and services that lacks the coordination to act in a unified effort on critical issues. Out of frustration at this lack of unity and consensus, industry leaders in Connecticut met to discuss what could be done to address this problem. They saw a need for a vibrant and pro-active organization that would represent **all** the different elements of the building and construction community.

With that idea in mind, a group approached the University of Hartford. They saw their participation and support of this organization as a way to serve the greater Connecticut community—and especially contribute to the strengthening of one of the state's major industries (indeed, in a study completed several years later, it was found that three of every ten people in the state were directly or indirectly impacted by construction).

Still growing strong

Some 32 years later, the Construction Institute has fulfilled its original vision and more. With close to 350 member organizations throughout Connecticut, as well as in Massachusetts, Rhode Island

and New York, the Institute serves as a catalyst and neutral forum for those in the business of the "built environment". It is independent, non-political and non-competitive with other construction industry-related organizations. It is a network, a communicator, a teacher, a forum and a catalyst. And it is part of a university.

Institute members encompass all the professions and diversified services that serve and supply the construction industry. These include owners, users and developers on the purchasing side and design professionals, contractors and subcontractors, consultants, manufacturers and suppliers, financial, legal and insurance services on the supply side. Members also include towns and municipalities, state agencies and trade organizations.

"Different sectors of the industry have a lot in common. They just need a means to talk to one another. The Institute was an experiment that always had at its core the bringing together of people," says Dr. William H. Cianci, Executive Director of the Construction Institute.

"We want everyone involved in construction and the planning, management and maintenance of facilities to be part of the Institute and to encourage them to interact, exchange ideas and share information so through their combined efforts they can work toward solutions to the industry's critical problems as well as help the industry reach its maximum potential."

"The Institute has two overriding goals," Cianci continues. "We offer educational programs that provide information and education on the most timely and

significant issues facing the industry. This in turn serves as an effective mechanism and focal point for achieving our main goal of bringing together the many professionals and segments that constitute the industry." He adds that through this network of professionals, the Institute provides unequalled access to industry leaders and the opportunity for its members to stay current on the latest trends and developments.

"From the time an environmental engineer takes a core sample from the site of a new project, to the time when the owner is handed the keys, a multitude of different, professionals and industry segments are involved," Cianci says. "All are dependent and interdependent on each other as a project evolves and all need to work together toward the same goal—the successful completion of a project."

To make this happen and for the industry and its members to grow, there needs to be a constant coming together, and sharing of information and experiences among the many participants. Cianci adds that the Construction Institute plays that all important role as a catalyst and conduit. "Construction has always been a very fragmented, fractured industry" he says. "As one architect noted, 'It's a wonder anything gets built'."

Having higher education involved

The Construction Institute is unique because it is not associated with a national trade organization but is part of an institution of higher education. Most important is the fact that the Institute is completely neutral—it cannot lobby and is seen as not having a partisan agenda.

The Institute's location within the University of Hartford has allowed it to take advantage of its many resources. Cianci says the university has committed itself to the Institute over the years and they should be commended for this. The Institute, in turn, provides the university with great exposure and visibility throughout the state and region through its many programs and events.

Mission possible

The Institute's mission is to advance the quality and efficiency of planning, design, construction, use, operations and management of facilities and systems through promoting the sharing of knowledge and experience, strengthening professional relationships and developing future leaders.

He says, "I believe the institute is viewed as an organization with a very strong purpose, and an excellent reputation and image. Institute members and their representatives are people at the very highest levels of their professions and our programs, forums and conferences are respected for their high quality content and panel participants."

At the very core of the Construction Institute's mission is education, not surprising for a division of a university. Every year, the Institute begins its program year with its annual *State-of-the-State* program, where the various department heads of the major state agencies involved with construction share their forecasts, building and implementation plans and opportunities for public construction projects that will take place. The governor of Connecticut is often invited to be the keynote speaker.

Other programs include:

- An annual *Owners Forum*: an interactive forum which brings together owners, design professionals, contractors and other industry segments to discuss and offer solutions to many of the key issues facing construction, with special emphasis on the problems each of these participants encounter in the building process and how they can be improved.
- Several *Regional Construction Forecasts* that provide in-depth discussions of major private and public projects throughout the central, western and eastern regions of the state and points out the particular conditions of these regions that may impact growth.
- Several *Construction Issues* forums that focus on very timely topics.
- A Young Professionals Council that now develops its own annual program—the *Young Professionals Forum*—that focuses on the needs, interests and

problems of young professionals who are defined as people with ten years or less of industry experience.

The Construction Institute is also the largest provider of continuing professional education in the region—averaging between 45 and 50 educational workshops a year. Workshops are directed to design professionals, contractors and professionals in facilities engineering and management, and offers CEU's and AIA/CES Learning Units. The Institute also offers two certificate programs—in Construction Management and Facilities Management.

The Institute, through its Facilities Management Council, was a member of the Business Round Table when it included a construction division. When that division was no longer retained by the Round Table, the Institute became a member of CURT and is very pleased to be part of this organization—its area representative in the Northeast - - that stays at the forefront of the construction industry.

Cianci says the importance of the Construction Institute and its value to the construction industry has grown over the years. "We had steady growth until the late 1980's to mid 1990's when a severe recession hit the country and especially Connecticut. Around 1995, with the industry was in a severe slump, people realized we were the place to turn to in order to find where the work was, who was doing what, what was new or not new and what were the trends and developments they should be aware of. That's the true value of an organization, when it can function well not just in the good times but also during the bad."

"People say how unique we were and what a value we could be to the industry. That was when we really started to grow as an association." ●

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"The key to success has been broad based public-private support for the initiative," explains Tim Horst, Program Manager of the Business Roundtable's Gulf Coast Workforce Development Initiative (GCWDI). "The hurricanes prompted a unified call to action which has enabled the formation of a unique coalition of organizations to provide a single solution to the labor shortage issue."

This call to action has succeeded—with record results. In late August, months ahead of schedule, the GCWDI announced that just over one year into the ambitious program, over 7,500 students have completed the training and another 2,000 are currently enrolled in class. The initial goal was to recruit and train up to 20,000 new construction workers in the Gulf Coast region by the end of 2009, to provide critically needed new construction workers in the Gulf Coast.

As Charles O. Holliday, Jr., Chairman and CEO of DuPont, and Co-chairman of the Gulf Coast Workforce Development Initiative, notes, "Residents of Louisiana, Mississippi and Texas have embraced our free classes,

demonstrating the vitality of the region and the residents' fierce desire to rebuild. We're so encouraged by the success thus far that we hope to step up recruiting efforts and expand into Alabama as well."

The GCWDI recruits students through the "I'm GREAT" campaign. GREAT, which stands for *Get Rewarded for Education and Advancement Training*, has helped bolster residents' sense of self-worth through participation in the construction industry, drawing widespread praise from political leaders in the region. Originally conceived in 2005 in response to that year's devastating hurricanes, the initiative was developed by the Business Roundtable, with support from organizations and individuals nation-wide, who have committed millions in funding to coordinate the recruiting and training of participants.

One such organization is the Construction Users Roundtable (CURT). As Horst explains, "The initiative would not have been possible without the endorsement and support of industry leaders and the CURT organizations. CURT member organizations have contributed over two thirds of the funds

and in-kind labor for the Initiative and are the largest and most influential construction users in the nation. Being able to list these companies as supporters provides the initiative significant credibility."

Participants in the initiative enroll in free training that gives them the necessary skills for entry-level jobs in the construction industry. Training is provided through partnerships with local community and technical colleges and with critical funding on both the federal and state levels. Upon completion of the coursework, graduates have the opportunity to participate in job fairs hosted at their training center. These job fairs provide trainees with an opportunity to be introduced to local contractors who are looking to hire additional construction workers.

The impact of the 7,500 new workers to the Gulf Coast region is huge, comments Horst. However, there is still more work to be done. "The people trained thus far under the gulf coast initiative will not in themselves rebuild the gulf coast," he says. "However, while it is not the final solution, it is a step in the right direction." ●




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A Firm Foundation of Education

Safety training a must in construction industry

By Edwin G. Foulke, Jr., Assistant Secretary of Labor, Occupational Safety and Health Administration (OSHA)

As everyone in the construction industry knows, a well-trained employee is a safer and more productive employee.

Tragically, in the United States we average three construction employee fatalities each day of the year. These fatalities can be prevented. OSHA believes training and education play a critical role in eliminating construction-related fatalities, which is why the agency is working diligently to enhance its training and education capabilities.

OSHA's Outreach Training Program is its primary way to teach employees about the fundamentals of safety and health. This year, certified trainers will teach more than half a million employees in our 10 and 30 hour outreach courses. This is an all-time high, and 80 percent of the people who are trained will come from the construction industry. In the past five years, participation in OSHA's Outreach Training Program has doubled as a result of the support from a broad range of groups, including unions, contractors, employer associations and individual companies. In

fact, recent state laws enacted in Massachusetts, Rhode Island and Connecticut now require 10 hour construction training for employees on public projects.

Through OSHA's Electronic Transmission and Distribution National Partnership, we developed a specialized 10-hour construction outreach program for employees in the electrical transmission and distribution industry. Recently, we collaborated again to develop a 20 hour Supervisor Leadership outreach training program for managers and supervisors.

The construction safety training is provided in multiple languages and is even available beyond our nation's borders. OSHA supports Hispanic outreach training with a wide range of initiatives, including a list of Spanish-language trainers, reference lists, and presentation materials that were recently added to our website, www.osha.gov. We believe the Outreach Training Program instills the value of safety and health to employees from different backgrounds and industries. OSHA encourages the continued use of this

outreach material in an effort to save lives.

As an active member of the National Incident Management System, OSHA also offers hurricane response and recovery training courses that are of particular interest to the construction industry. Additional courses include training in asbestos abatement, tree removal safety, forklift operator training, waterway debris general safety awareness, an 8 hour Hazmat Refresher course, a 16 hour Disaster Site Worker course, and a 4 day Disaster Site Worker Train-the-Trainer course.

OSHA and its partners offer several education programs of interest to the construction industry, including the OSHA Trenching Initiative Outreach Program, Hispanic Outreach Program, OSHA Challenge for Construction, OSHA Partnerships, Construction Alliances, and the prestigious Voluntary Protection Program for Construction.

The Trenching Initiative Outreach program initiated a study of trench-related fatalities, reviewed fatality data (2003-2006), identified causal factors, and developed guidance tools for English and Spanish-speaking employees. As part of OSHA's outreach effort, we distributed to the construction industry stakeholders throughout the United States, Europe and Asia over 450,000 trench safety *QuickCards*, 40,000 English/Spanish trench safety posters, and 4,000 NIOSH CD-ROMs on trench safety. This outreach effort helped to reduce trenching fatalities by 50 percent.

In 2005, there were 316 Hispanic fatalities on construction sites. Our Hispanic Outreach Program aims to reduce injuries and fatalities among Spanish-speaking employees by providing occupational safety and health resources in their language. Our efforts focus attention on the top hazards which caused 77 percent of the total Hispanic employees fatalities, including head injuries, crushing and electrocutions. OSHA Hispanic Outreach includes toll-free access to our Spanish language option to the OSHA Helpline;

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providing on-line information and compliance assistance tools, posters, and videos in Spanish; offering safety and health training workshops and courses in Spanish; partnering with industry and organizations to communicate with Spanish-speaking employees through OSHA's cooperative programs; and working through organizations and agencies such as Mexican consulates in key U.S. cities to find additional opportunities to educate employees.

The OSHA Challenge for Construction Program is a three-phase process where participants are mentored by an independent non-OSHA Challenge Administrator to strive for the highest standards of workplace safety and health. Each of the three phases effectively addresses employee training. Upon successful completion of the program, an applicant is prepared to apply for the prestigious VPP status.

While VPP was originally designed for general industry worksites, VPP for

Construction (VPP-C) uniquely applies to the mobile and temporary nature of much of the construction industry. Like VPP, VPP-C offers participants an opportunity to achieve Star and Merit recognition levels for implementing exemplary safety and health management systems. Employers who are approved with VPP Star status quickly become role models and mentors of excellence in the industry, for protecting employees. An effective training and education component is one of the keys to obtaining VPP status.

OSHA partnerships achieve a positive and measurable impact on workplace safety and health by developing employee training focused on individual worksites. There are now 95 OSHA Construction Partnerships in effect across the nation.

We also have 13 active Construction Alliances. In one example, the goals for the Roadway Work Zone Alliance include achieving general work zone safety and health, developing innovative solutions for reducing injuries and fatalities, pursuing value-added results, developing hazard awareness training and education programs, and conducting Hispanic outreach.

Education and training are the foundation of an effective occupational safety and health management system in every workplace—a foundation on which employers and employees everywhere should build. In this way, we may ensure that at the end of every day everyone returns home to family and friends safe and healthy. ●

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Occupational Safety and Health Administration: www.osha.gov

The Construction Safety Council: www.buildsafe.org

The Center to Protect Workers' Rights: www.cpwr.com

The National Institute for Occupational Safety and Health: www.cdc.gov/niosh/homepage.html

National Safety Education Center: www.earnyourcard.com

Look Up (North) For Labor Answers

What do our construction labor requirements look like over the next decade?

**By George Gritzotis,
Executive Director,
Construction Sector Council**

Can you answer this question? Well Canada now can, thanks to a robust construction forecasting tool that was developed by the Construction Sector Council (CSC). A few months ago, I spoke at the McGraw-Hill Construction/Construction Users Roundtable *Help Wanted Forum* in New Orleans. I introduced listeners to our forecasting tool that looks nine years into the future and provides information on the economic outlook, construction investment, employment demand and rankings of the availability of labor for 31 trades, by province and region.

And now, the forecast data is not only available annually in a written report, it is also accessible online at the touch of a mouse at www.constructionforecasts.ca. This means consistent detailed information on construction activity, employment demand, replacement demand, and much more is available to industry, government, training providers, and others.

Why is this important and what does this offer the Canadian construction industry? Well, for starters it provides a look into the future that enables the industry, government and training providers to target their initiatives and ensure that the industry has the skilled workforce it requires now and into the future.

That's why we must ask ourselves whether our neighbors to the south need this capability too, and if they do, how can they get it? I believe this an opportunity for us all to work together. After

all, we work in a global economy and perhaps this calls for global solutions.

Canada is forecasting a loss of close to 20 per cent of its skilled workers over the next nine years due to retirements. This doesn't include the additional workers required just to meet new demand. We're beginning to develop strategies needed to address this issue. We've identified where the construction "hot spots" are going to be, when the market will tighten and which trades will be impacted. The U.S. will need to do the same.

The CSC works closely with its stakeholders (owners, contractors, labor groups, government and training providers) to develop forecasts that reflect regional realities. The industry takes ownership of the forecast and works with the CSC to ensure it meets their needs. That is the key to the success of the forecast tool. Developing it from the ground up with practical hands on involvement through a network of national and regional industry committees ensures the information is developed in a consistent manner and brings life to the numbers.

The foundation of the forecast is an understanding of the major construction projects planned, the timing of those projects, and the trades that will be required and when they will be needed. Industry is the source of this detail. Getting this detail is a challenge but the CSC is working with its owner community to raise awareness of the importance of sharing

this information and the value this brings to the accuracy of the forecast. And **it is** working.

The value of this type of information is significant. It could enable the United States to:

- More accurately assess risk when planning new construction projects;
- Target training programs in sufficient time to create the skilled workers required;
- Influence government policy by providing data on workforce issues; and
- Turn up and turn down our recruitment efforts to match need.

For more information:
Construction Forecasts:
www.constructionforecasts.ca

Construction Sector Council:
www.csc-ca.org

We would be happy to share our work with organizations in the United States. This is a global issue and we can learn from each other. We've been talking to the Australia Construction Industry Forum (ACIF) and they are working on the same issues. We now have an agreement to share our work and are considering the possibility of joint labor market information initiatives.

Canada's construction industry knows what the future is going to bring. Our American counterparts can learn a lot from our experiences. ●

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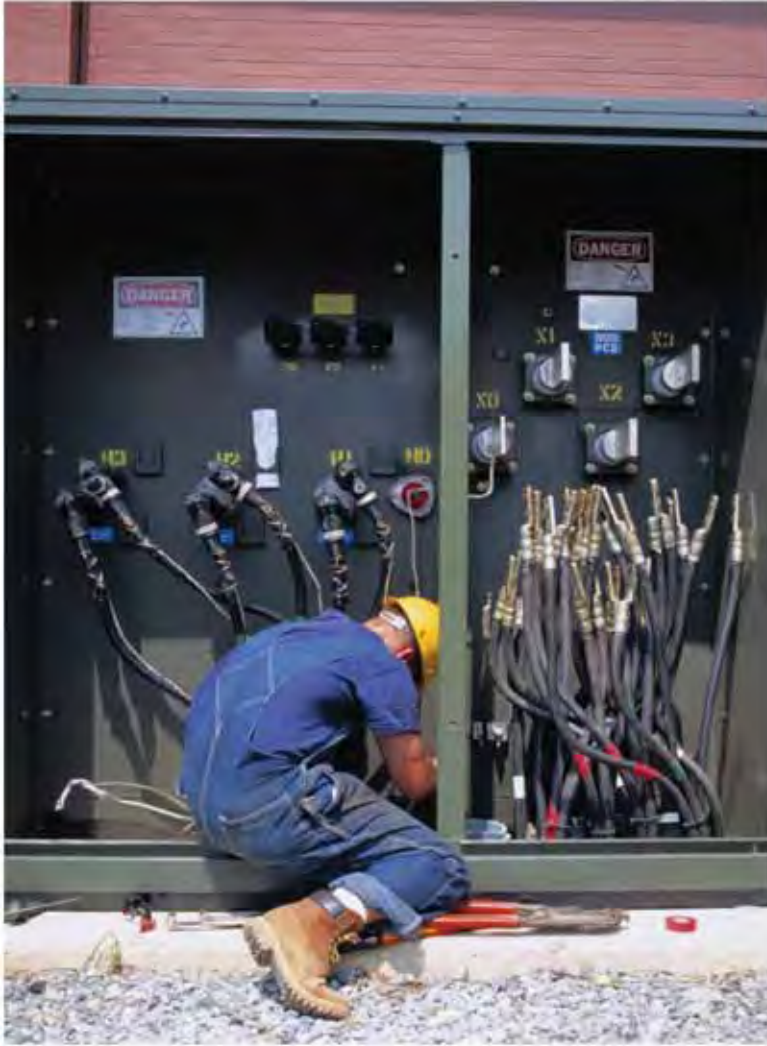
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