ZETLIN & DE CHIARA LLP

QUARTERLY REVIEW

CURRENT LEGAL AND BUSINESS DEVELOPMENTS AFFECTING THE DESIGN, CONSTRUCTION AND REAL ESTATE INDUSTRIES

2009 VOL. 15 NO. 1

ISSUE FOCUS:

The design and construction industries are navigating a changing landscape, technologically and contractually. BIM is the change agent. This issue explores the implications of BIM on our practices, our project approaches and our current building culture.

CONTENTS

BIM ROUNDTABLE

Weighing the Issues on BIM Technology

Moderated by Michael J. Vardaro, Esq.

Michael J. Vardaro, Esq.

On February 11, 2009, Zetlin & De Chiara LLP organized a roundtable discussion on Building Information Modeling. Michael J. Vardaro, a partner of Zetlin & De Chiara, moderated the first in a series of discussions planned to facilitate the exchange of information between owners, design professionals, contractors and subcontractors, to advance the implementation and use of BIM in the construction industry. The participants were James Vandezande, Digital Design Manager of the New York office of Skidmore, Owings & Merrill LLP; William Sharples, Principal of SHoP Construction; Jonathan Mallie, Principal and Managing Director of SHoP Construction; and John A. Rapaport, General Counsel and Director of Operations, of Component Assembly Systems, Inc. The unique backgrounds and experiences of the panel provided the basis for an informative discussion of some of the issues the construction industry faces in implementing BIM.

"BIM is a process, not a tool. It is in the eye of the beholder."

- **James Vandezande**
Digital Design Manager of the New York office of Skidmore, Owings & Merrill LLP

CONTINUED ON PG. 2

ZETLIN & DE CHIARA LLP ANNOUNCES TWO NEW PARTNERS

Zetlin & De Chiara LLP announced the promotion of two attorneys, Lina G. Telese and James J. Terry, to Partners of the firm, effective January 1, 2009.

Michael K. De Chiara, a Founding Partner of Zetlin & De Chiara LLP, said, "It is important to continually strengthen the resources of the firm and the appointment of Lina and Jim as Partners enhances our ability to serve our clients in the areas of litigation and contract negotiation. We welcome them to the management team and look forward to their continued guidance and the support they provide to our design professional and real estate clients."

Lina G. Telese, Esq.

Lina G. Telese has been an attorney with Zetlin & De Chiara LLP since 2002 representing design professionals, owners and contractors in all aspects of the construction process, including professional licensing issues, drafting and negotiating contracts, resolving disputes through mediation and arbitration, and appearing before state and federal courts with regard to construction and professional liability claims.

James J. Terry, Esq.

James J. Terry joined Zetlin & De Chiara LLP in November 2007 and has practiced law for more than 30 years in the areas of construction and surety law. From 2002-2007, Mr. Terry served as Vice President and General Counsel of F.J. Sciame Construction Co., Inc. ■

SAVE THE DATE

MAY 18

AIA/ACEC Meetings

Mark your calendars for **May 18, 2009** for Zetlin & De Chiara's Bi-Annual Spring AIA/ACEC Meetings, to be held at the Harvard Club in New York City. Our program includes featured presenters on topics including: Firm Management, Contracts and Risk Management.

- 8:30 a.m. – 10:00 a.m. – Firm Management
  Managing Your Firm during Difficult Times
- 10:30 a.m. – 12:00 p.m. – Risk Management
  Managing Troubled Projects
- 12:30 p.m. – 2:00 p.m. – Contracts
  Understanding Critical Contract Provisions

GUEST PANELISTS:
Joseph Dennis, General Counsel, Arup
Jeffrey Goldsmith, Assistant General Counsel, Skidmore, Owings & Merrill LLP
Thomas Giordano, Regional Counsel, Bovis Lend Lease Holdings, Inc.
Robert Boder, General Counsel, Kohn Pedersen Fox Associates PC

For more information, contact Whitney Murray at 212.682.6800 or via email at wmurray@zdlaw.com

BIM ROUNDTABLE CONTINUED FROM PG. 1

THE DEFINITION & MEANING OF BIM

MV: *Often times, the line distinguishing 3-D models and Building Information Modeling gets blurred. What is BIM, and when does a project qualify as a BIM project?*

JR: Component Assembly Systems, a drywall subcontractor, saw early on that with technology you can interrelate all the different values and the different costing and all the things we do in the construction process. It starts as an internal process with each company looking at what BIM is in terms of information, how information flows within the company, and then how you interact with the rest of the construction community. What we have seen in the industry is that BIM is used to look at clash detection and ways to reduce RFIs after the bidding process. Also, pieces of projects that require shop drawings or additional detail, like a curtain wall design, may be modeled by a consultant during the construction process.

JV: I want to throw out two statements which I always tell people, "BIM is a process, not a tool," and "BIM is in the eye of the beholder." BIM to an architect or engineer is a lot different than it is to a subcontractor and an owner. There are some fundamental tenets of what BIM is. It has to be 3-D, model-based, and the "I" in BIM needs to be incorporated in some form or fashion. What does this mean? It means you have an object in a model that needs to know what it is. It can't just be a solid. It needs to know whether it's a door, or a wall or a toilet. It needs to know to some degree when it's going to be built. And the behavior – when they put a door object into the wall object, how does that wall behave? Does it cut the opening where the door needs to be? If a door is moved, does the wall opening move with it? If a wall is moved, do the doors in that wall move with it? All of this kind of behavior defines what Building Information Modeling is.

WS: BIM is not new, it is a reinvention. The issue we're having right now is not so much with the model, but the protocols in which you build in the job trailer environment. When I worked in construction in the 80's in Washington D.C., the supers would establish the protocols in the job trailers. How drawings would be checked, how you would do quantity and place take-offs and so forth. It translated all the way to the foremen in the field and, ultimately, to the subs. This process does not exist for BIM. The focus of Building Information Modeling is communication management. The key word we use with our subs and contractors is trust. Trust comes down to how you resolve issues such as coordination issues, and other problems that come up that ultimately move the project forward.

RE-DEFINING ROLES

MV: *BIM offers many valuable advantages – conflict detection, visualization of the project and cost estimating are just a few commonly acknowledged. But to realize the full potential of BIM, the roles of the various project participants must be redefined. How must the roles change to facilitate the transformation to the BIM process?*

WS: It's the communication. It's training our design staff, primarily architects. How do you communicate in a new way to the work force? The whole protocol in which you communicate with your subs and contractors does not exist and this is something SHoP is focusing on with its staff. The biggest challenge SHoP Construction has taken on is training our design staff, on the SHoP Architects side, on how to communicate this information clearly and succinctly with the subs to gain >>


John A. Rapaport


Jonathan Mallie


William Sharples


James Vandezande

their confidence. It's really the connection to the actual workforce in the field that we're focusing on.

JM: This is one of the reasons we formed SHoP Construction. To start out, we are going to team up with general contractors, to find someone who is going to be onboard with this. We develop an agreement with them that we are going to carry out this process in this way. Eventually, you are bringing these industries together. General contractors need to be open to integrating their companies with the design force up front.

WS: That goes with shared risk though. It's less so on the contractor side because they are carrying all of the bonds, and ultimately, the project on their shoulders, but what can the design side take? On our private work and our development work, we are partners in this. We put our money where our mouth is. That means we don't send our fabrication cut files to a contractor to figure out how to make them. We figure it out in our office. Whether it is a curvilinear brick-precast wall or faceted metal façade, those files are done in our offices and they're sent out to the fabricators. We tell fabricators "you cut from these files." We develop means and methods with our installers. But again, those issues of tolerance and risks are shared. Suddenly, the contractor says there is no risk for me here – I can focus my risk issues on other things, other than the façade. These are the ways we start to develop these relationships of trust. Ultimately, this venture, this joining of these two different industries together comes down to "What are you going to do for me?" This is going to create the ability to move forward.

JR: This goes back to the master-builder concept. The architect was always the master-builder. The idea is a sound one but it does raise the question "Where does the GC/CM fit in and what is its role?" I think the public works should be the first on board. They should have databases looking at best value bids. Now you look at the idea of rating contractors. You can't go anywhere and see who the best subcontractor in New York is. The government should be looking at ways to build information to get the best contractors out, and then these jobs will require a certain level of competency to bid. Right now, there is no such requirement. The government should be the one requiring better ways to work, not just comparing numbers from companies which aren't the same. They're addicted to "lowest price" and the state government can't handle anything different. Do we want the best actors? Are we going to encourage best behavior in a way through contracting?

IMPLEMENTING BIM

MV: *I am sure that BIM sounds great to everyone, but the real challenge is how to move to BIM from the environment we have all known for so long. What needs to be done to get a company ready to offer services on a BIM project?*

JR: In 2009, most contractors have not adopted BIM. Most are not even experimenting with it. We want to get involved with BIM, but no one is modeling the drywall contractor's work. We're considered a low-cost change order contractor. Right now, the MEPs are where BIM is and we're not yet in the i-rooms. Internally, I'm showing my estimators what the world of BIM is. I'm educating my people. We're looking at hiring a modeler. Why hire a modeler if you're a drywall contractor? The world is moving in this direction. Go back to before computers were part of business, before there was e-mail. It's the same basic principle. You're going to have e-mail, you're going to have the internet, and you're going to have BIM. Implementation can take many forms. Educate your personnel and get on board, the best contractors understand this.

JV: From the designer's perspective, there's the term "lonely BIM v. social BIM." Lonely BIM is essentially starting the process internally without necessarily worrying about sharing the model or sharing the risk. In social BIM, you're willing to share the model with the subs or the GCs. Even in our traditional projects, we use modeling and BIM, to some degree, to do analysis. But the deliverable in many cases is still 2-D drawings. So at some point in the process, the data gets dumbed down. On the flip side, an owner or client comes to you with RFQs and RFPs that have varying degrees of "What are your BIM capabilities?" Some just say "you must do BIM" and have a few requirements. Other owners are requiring BIM, but they are very specific on what they want you to tell them – how you can do what you do – interference detection, scheduling, estimating, clash detection. They know, they've realized, and believe in it or have seen BIM in past projects and this is what they want. When you have that kind of requirement, you have to learn. You have to do it or else you won't get the job. As these projects come across our desks more often, it almost necessitates the implementation of BIM.

JM: It starts with the philosophy of the designers. The philosophy from the design side is we can no longer sketch on a piece of paper and say "Here, go figure it out." That architect presents a problem with everything we are discussing today. One of our design philosophies is, "We want to know how much you want it to cost." We have to make that a part of the process. We want to know the schedule you want to build it within. And we are going to look at means and methods during the design phase. We're going to look for technology that can help us do that.

MV: *Undoubtedly, the construction industry is transitioning towards using BIM. We all understand that various changes in the roles of project participants and the lines of communication will have a profound effect on each of the parties' potential liability. In that regard, the legal community is struggling with the move to BIM. The transition to utilizing BIM to its potential will take time, the question is just how much?* ■

Thank you to all of our guests for participating in this informative discussion.

To view the complete roundtable discussion on BIM, please visit: http://www.zdlaw.com.

The digest of this BIM Roundtable was prepared by Calvin Lee, Legal Intern.

BUILDING INFORMATION MODELING

THE FUTURE OF DEVELOPMENT, DESIGN & CONSTRUCTION

By Louis J. Dennis, Esq.

Louis J. Dennis, Esq.

Over the last several years, BIM (Building Information Modeling) has been one of the hottest topics in development, design and construction; however, BIM is not new. In fact, it has been in use by many design firms for more than 10 years and its popularity continues to increase as the technology becomes more readily available. BIM is the future of the industry, and building industry participants need to know what BIM is, understand the benefits and potential, and be prepared to address the uncertainties that remain about its implementation. The building industry is working to address these uncertainties, including the exploration of new relationships and novel methods of project delivery, which will allow the full benefits of BIM to be utilized.

BIM is a design and construction tool that uses digital technology to create a three-dimensional model in which a structure's characteristics and components are defined and related to one another. The result is a model in which a change to any component will automatically make all necessary corresponding changes to other parts of the model according to the internal parameters established by the designer or other user. In addition, the changes will automatically be reflected throughout the design (e.g., a change to an elevation will also be changed in plan and section). Essentially, the entire structure can be constructed "virtually" before a shovel goes into the ground—with varying degrees of specificity based on model scope and inputs. In its full application, the model data can be used to generate all types of related sets of information, including estimates, schedules, material lists and even shop drawings, and can continue to be an invaluable tool in operations and maintenance throughout the life of the building.

There are benefits at all stages of a project and to all participants: developer, designers, contractors and end-user when using the implementation and design factors of BIM. During program development and design, BIM facilitates the owner's review of alternatives, including the effect a change would have on the project budget, building appearance and even sustainability-related issues. It also allows the design team to advance the design more quickly and at a lower cost. Perhaps most significantly, BIM improves the design team's ability to identify conflicts between disciplines at a very early stage, dramatically reducing both the volume of contractor Requests For Information and future contractor claims based on purported design errors and omissions.

From a contractor's perspective, BIM simplifies material take-offs and estimating, virtually eliminating associated costs; it also reduces the possibility of counting and computational errors in those processes that can be very costly. The contractor also benefits from the model's clash detection capabilities, not only because of the reduction in RFIs, but also in connection with its own coordination responsibilities and in the integration of any contractor design-build or performance-specified components. BIM is already commonly used with structural steel and can streamline the design-detail-fabrication process while greatly reducing errors and improving accuracy. This, of course, reduces problems in the field and avoids costly late changes and field corrections. The MEP trade contractors can realize similar advantages in both fabrication and installation, and resulting efficiencies and savings.

"BIM is the future of the building industry."

Benefits to the owner and end-users continue even after completion. BIM facilitates the generation of as-builts (it's virtually automatic) and revolutionizes the concept with the increased potential for later use. At a minimum, any future modifications or repairs to the structure will be more easily visualized, planned and accomplished. In addition, if the right data is input and proper software capability included, the model can be used throughout the building's life in facility maintenance and operations. An appropriately populated model can be used to budget and schedule maintenance of building systems and can even be used for simulating emergency responses, such as a building evacuation.

Given the tremendous potential for BIM and the benefits to all participants, there are still significant obstacles to be overcome, including legal and insurance issues, technical questions, training requirements, and the problem of integrating BIM into existing business forms or developing more effective legal relationships to accommodate this dynamic technological shift. It is in the context of the design-bid-build project where these issues are most problematic.

Within traditional legal relationships, technical uncertainties, in particular, still inhibit the collaborative use of BIM. Unresolved issues include the extent of reliance on a shared model and any resulting liability, the potential for data corruption and loss or misuse, software interoperability problems, potential conflicts between the model and two-dimensional contract documents and intellectual property issues. The technology continues to advance and the "interoperability" movement, which would create standards that will allow separate models or model components (e.g., architectural and structural) created with different software to be integrated or forwarded with fewer translation errors (in theory, none), is gaining ground. This, along with further technological advances and experience, will eventually resolve many of these system, software and data issues. The concerns related to the extent of reliance on a shared model will diminish as confidence in the model grows and the risks are reduced and better understood. This, in turn, will ease concerns about corresponding liability and other legal issues, which will allow the void caused by the current lack of any established standardized BIM-related contracts to be filled.

By its very nature, BIM is collaborative. While non-collaborative applications of BIM are productive and improvements over traditional methods, the greatest advantages will be realized when the traditional divisions between design and construction are eliminated. The U.S. Department of Commerce reports that productivity in the construction industry lags severely behind all other non-family farm industries. The most productive course for the building industry to reverse this trend is to move further toward design-build, integrated project delivery and other collaborative arrangements that unify the interests of all project participants to focus on solving problems that arise, rather than looking to cast blame or reap financial benefit from another party's error. Design-build is well established and standard contract forms are readily available. The AIA issued its Integrated Project Delivery Guide in 2007 and both the AIA and ConsensusDOCS have issued standardized contract forms for an Integrated Project Delivery method. This progress in the creation of standard contract documents can be expected to continue.

For BIM to reach its full potential, the traditional design and construction relationships and business models will need to be revisited and modified. BIM ultimately has the power to force that change. BIM, in connection with any project delivery method, is the future of the building industry and participants who want to continue to be successful and profitable ignore it at their peril. ■

COMPREHENSIVE INTERNATIONAL BIM WITH FULL OWNER INVOLVEMENT

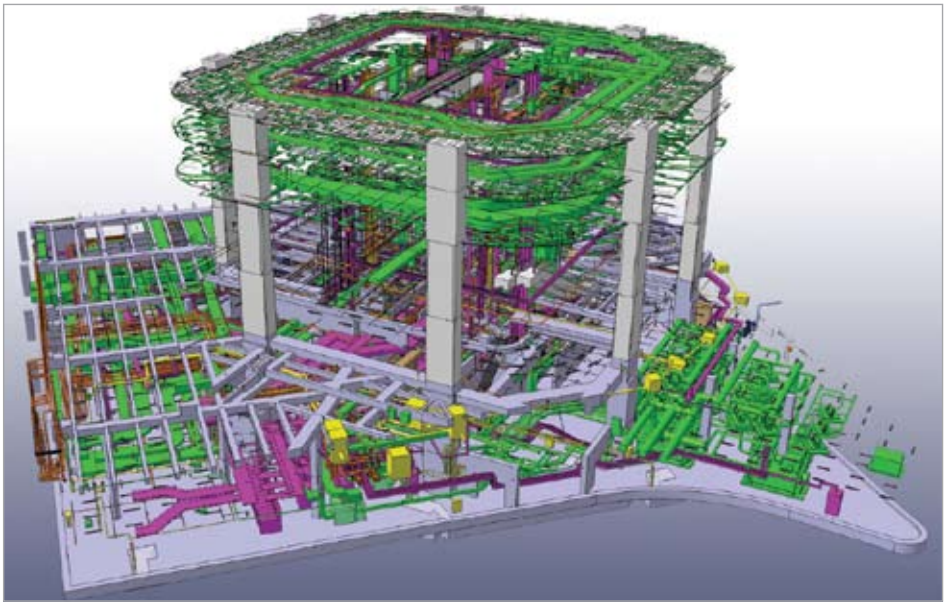
By Dennis R. Shelden & Martin Riese, Gehry Technologies

Dennis R. Shelden

Martin Riese

Owners have sometimes appeared to be "silent partners" in current BIM implementations, a legacy of their traditionally limited role in the creation and use of project documentation. While owners have a vested stake in the content of this information—and the underlying processes of project design and execution—their relationships to this information have historically focused on managing oversight, approval and, of course, financial responsibility. Until recently, developers of BIM technologies have concentrated primarily on parties that develop project documentation (architects, engineers, and consultants) and, to some degree, on contractors and subcontractors who process the documents for construction. Where owners have been considered in the development of BIM tools, the consideration has largely been related to how owners can use BIM in facilities management applications. Many (but by no means all) owners have so far taken a hands-off approach to the development of the BIM data and supporting process changes; there remains the perception, and potentially the reality, of shifts in risk associated with owners taking a strong leadership role in the working methods of the building team. There is the sense that some efficiencies and increased control may be enjoyed by the project participants in leveraging shared BIM data, resulting in a better overall building. However, there is also the perception that these benefits are unlikely to translate measurably into lower project costs for the project team - relative to the additional risks and responsibilities brought about by the owner imposing process change.

Owners have the most to gain from the benefits of BIM, as the ultimate beneficiaries of improved building performance and project delivery efficiencies. As project stakeholders, the owners are also best placed to impose the necessary enabling structure of information development, distribution and organizational processes. Providing owners with direct added-value from the BIM data set is an important advancement that is required to drive adoption.



Above: A BIM-generated image from One Island East. Image courtesy of Gehry Technologies.

However, this owner-driven approach to BIM implicitly requires new practices by owners that desire improved access to the project information. Benefits are now beginning to occur by providing owners direct visibility and control of the project BIM, and by integrating BIM further into financial aspects of building ownership.

Gehry Technologies has participated in a number of projects that point to methodologies that can bring owners into the BIM conversation as more active participants, by identifying and providing new values to owners beyond those traditionally associated with project information.

A. CASE STUDY: SWIRE PROPERTIES' ONE ISLAND EAST

Swire Properties Limited, a substantial developer of commercial, retail and residential properties throughout the world, has made a significant investment in developing owner-driven BIM methodologies for many of its new projects.

The One Island East project in Hong Kong, a 70-story, 1.4 million square-foot office tower, was the first Swire Properties BIM-driven project to be completed. The owner retained Gehry Technologies (GT) as the BIM consultant for the project, to assist in the implementation of BIM practices and supporting technologies. The owner's objective was to achieve a high-quality design while saving money and improving construction time by using collaborative, collocated work methods and integrated 3-D modeling tools. The initial objective was to save 10 percent on the cost and reduce construction time.

B. TEAM SETUP & IMPLEMENTATION

GT was brought in during design development, after preliminary 2-D drawings had been completed. GT produced the initial BIM model from the 2-D design drawings, and then transferred the BIM to the project team. Formal management of the model was then adopted by the owner, with the BIM Consultant providing the model manager for this role.

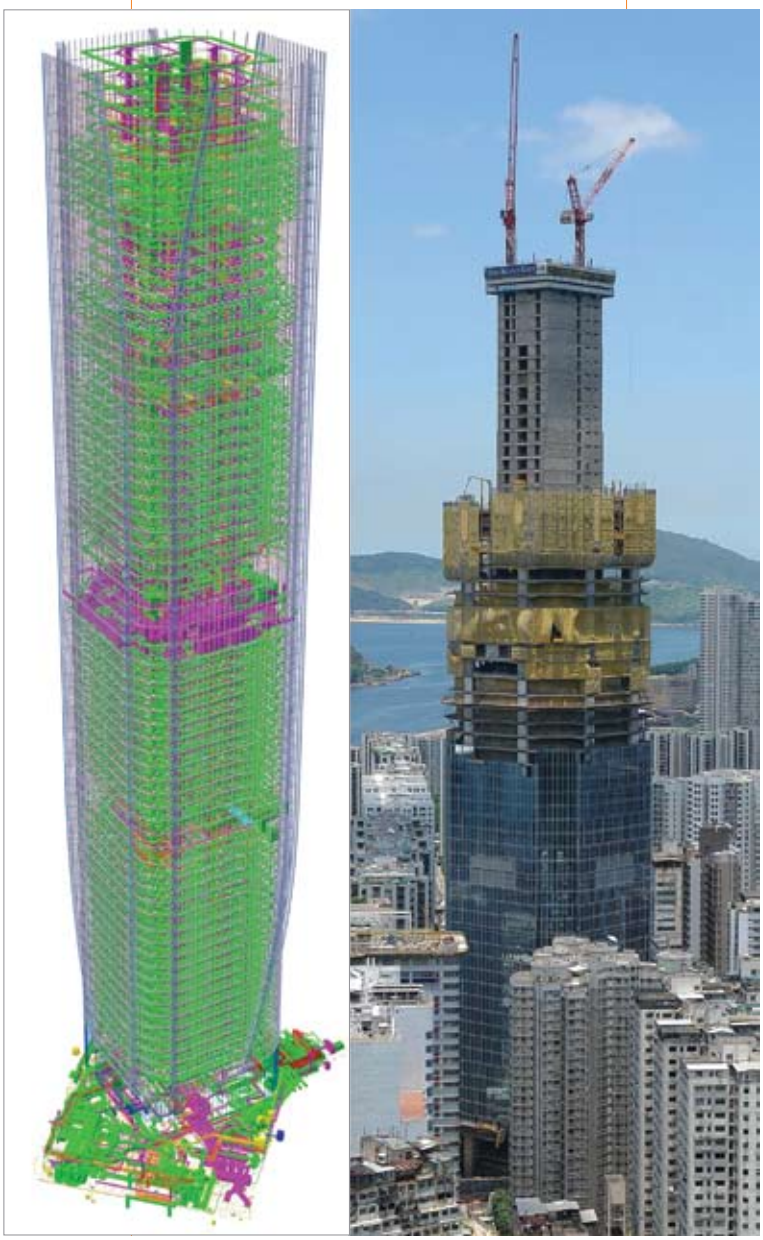
During the design phase, the owner provided a co-location office space for the project BIM team near the building site. Each of the key consultants provided a project team of BIM staff, who were responsible for developing and coordinating their components of the design and associated modeling. The owner provided a server, a web portal and associated IT infrastructure for the team. Workstations and software were also acquired by the owner, who sponsored the BIM training and technical support for the design phase team. The owner provided an active, senior project management team that managed the process. The BIM Consultant worked as a member of the project team to develop and implement the BIM methodology, providing database architecture, information development and control processes, BIM trainers, technical support and supplementary BIM modeling staff. A model manager led the coordination and management >>

of BIM information developed by the team for the duration of the pre-tender phase. The team developed virtually all of the project 3-D data on a common software platform, Digital Project. Internet-based vaulting, and versioning databasing technology was used to coordinate the parallel collaborative working processes of the 30-person team.

MEP modeling has proven to be one of the most significant contributing factors to the success of the integrated BIM value delivery. The One Island East model included all major MEP elements. Clash detection was used extensively and continuously both to identify interferences associated with these items and to manage the construction of correct openings in structure and architecture. This process enabled the design team to identify and resolve over 2000 conflicts before tendering. Later, during construction, the contractor used the same technology and working methods to identify and manage hundreds of clash and coordination issues.

The owner procured the project using a traditional tender process; a number of qualified main contractors were invited to bid for the project. GT trained a number of the potential main contractors in the use of quantity extraction and measurement from the BIM model. The BIM model provided an enhanced quantity take-off capability that improved the speed and accuracy of the management of quantities before and after tender. Lower, more accurate tender pricing resulted from better identification and management of the contractors' unknowns early on. Four contractors submitted competing bids that were closer to each other than would have been expected. While the BIM model did not form part of the legal contract documents, it was appended to the contract as reference information, and the quantities from the model were used as the basis for the bill of quantities.

Subsequent to contract award, the winning contractor, Gammon Construction Limited of Hong Kong, assumed full responsibility for the tendered BIM model and began to develop it into a highly accurate and detailed 3-D construction BIM model. Gammon and MEP subcontractor Balfour Beatty continually kept the progress of the One Island East BIM model ahead of construction site activities. After being trained by GT, Gammon Construction maintained a team of eight full-time modelers who helped to identify and manage clashes and coordination issues, incorporating the resulting design solutions back into the model. A number of subcontractors—including the cladding contractor, Gartner, also modeled their elements of the work. All shop drawings—including all MEP shop drawings— were reviewed against the design intent as indicated in the BIM model and then incorporated into it. Any requirements for revisions that were identified in this shop drawing process were returned to the relevant subcontractor for incorporation into revised shop drawings. The construction BIM model became the main visualization tool for coordinating the many elements of the project prior to construction.



Above: A BIM-generated image of the One Island East project alongside an actual photo in construction. Images courtesy of Gehry Technologies.

4-D simulation was employed extensively to help optimize the construction sequence and manage risk. In addition to "conventional" 4-D modeling, construction process simulations were produced for Gammon by the Virtual Prototyping Laboratory at the Hong Kong Polytechnic University, in cooperation with the BIM consultant, and used process simulation tools developed in the manufacturing industry for assembly line simulation and control. These simulations were produced using the actual BIM elements aggregated by the project team. The contractor's team conducted detailed construction sequence optimization exercises before the actual construction. A number of sequencing problems and clashes were identified—particularly in critical risk areas such as the four day floor construction cycle and the erection of the outrigger floors. Job safety aspects were also vetted and communicated to construction personnel through the construction simulation process.

C. RESULTS & LESSONS LEARNED

Gammon Construction has reported that Construction Process Modeling saved the project at least 20 days. Across the construction industry, it is thought that geometric coordination of the design prior to construction yields at least a 10 percent overall cost savings, and that construction process modeling can contribute an additional 20 percent cost savings. Order of magnitude reductions of contractor Requests For Information (RFIs), and significant reductions of claims on site resulting from incomplete design coordination were experienced on this project. The project was completed ahead of time and 90 percent rented >>

at completion. Transferring the entire BIM process from design to construction teams was essential to realizing the maximum potential value during construction. This was achieved by making it a contractual obligation that the contractors adopt, and continue to develop the BIM model and technology as part of the creation of the construction information.

Providing all of the bidders with the pre-tender 3-D BIM model helped them to evaluate the level of risk and resulted in lower tender returns than in a traditional 2-D-based tender. After completion, the contractor adopted Digital Project and 3-D BIM and created a permanent in-house construction BIM team. Throughout the design and construction phase, BIM was used to monitor cost in real time. The technology can produce vast, detailed and appropriately formatted quantity take-off information in real time. This helps the entire project team to manage cost more effectively throughout the project. Ongoing 4-D analysis and Construction Process Simulation were used extensively to optimize the construction process. On One Island East, the owners's leadership of the BIM process was fundamental to the success of the project. This direct, top-down approach provided a coordinated vision for the project goals and provided an effective structure for delivering the results.

Since beginning owner-driven BIM practices on One Island East, Swire has deployed these practices on a number of large new developments in Hong Kong and China. The owner has continued to retain Gehry Technologies for assistance in transitioning the methods initially developed on One Island East to other projects in its portfolio. The One Island East team was honored to receive the 2008 AIA TAP BIM Award for Process Innovation on this project. ■

Martin Riese

Martin Riese is the Managing Director of Gehry Technologies in Asia.

Dennis R. Shelden

Dennis R. Shelden is Chief Technology Officer for Gehry Technologies.

Gehry Technologies provides design and construction lifecycle information management consulting services.

THE USE OF BIM IN THE MARKET

IMPROVING THE WAY WE BUILD

By Sheralyn Mar, Esq.

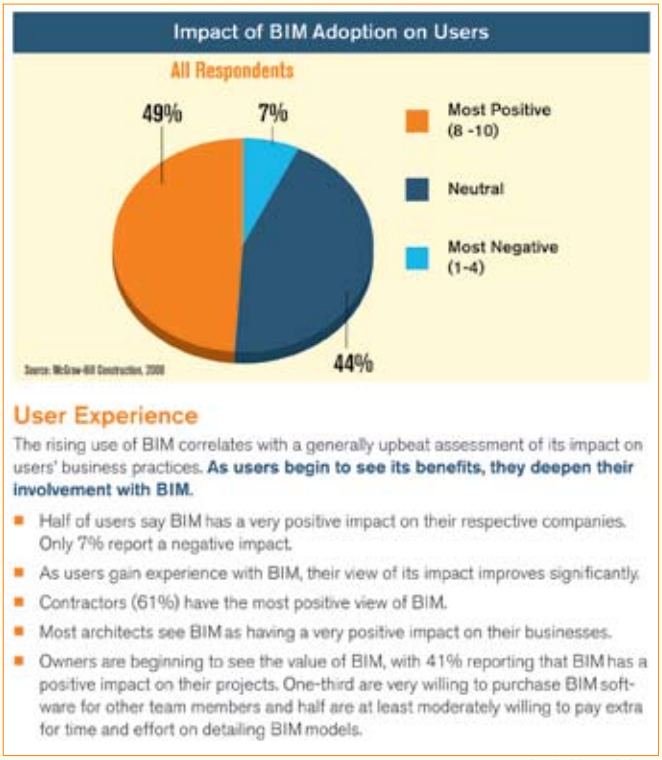
Sheralyn Mar, Esq.

One of the latest trends in creating and managing building data during the design, construction and operation phases of a project is Building Information Modeling, better known as BIM. This new technology provides the means for increasing productivity and efficiently designing work through the construction and design process.

A recent report published by McGraw-Hill Construction titled "SmartMarket Report on Building Information Modeling: Transforming Design and Construction to Achieve Greater Industry Productivity," summarizes how the use of BIM's 3-D visualization capabilities used by architects, engineers, contractors and owners assists in boosting communication between and among construction professionals. BIM has been shown to facilitate a collaborative environment due to its focus on the sharing of data. BIM users have experienced greater productivity as a result of spending more time on design and less time on documentation.

The most significant benefits reported regarding the use of BIM include:

- Ease of coordination among various software and project personnel;
- Improved communication and collaboration on projects;
- Increased control of costs, quality and completion schedules; and
- Achievement of a competitive edge when bidding on projects.



Reprinted with permission.

With BIM, there is enormous potential for the lowering of costs, and improvement in the overall safety, strength and quality of contruction projects. Many companies have tracked their return on investment from the use of BIM through measurable reductions in the number of requests for information and field coordination problems. Additionally, the effect of 3-D visualization on communication, and the impact of BIM on successful bidding of projects seems to be leaving its mark with owners.

The tremendous success experienced by BIM users thus far is both encouraging and exciting. It demonstrates that a competitive advantage can be levered by the use of BIM. As technological advancements continue and BIM users become more proficient, expect BIM to become the accepted methodology for generating and managing building data. ■

AIA UPDATE

New BIM Protocols: AIA & ConsensusDOCS

By Daniel H. Crow, Esq.

Daniel H. Crow, Esq.

In 2008, ConsensusDOCS and the American Institute of Architects published standard-form contract documents addressing BIM issues in construction. Both documents are intended to supplement design and construction contracts to establish procedures for using BIM on a given project. The documents address project participants' representations as to accuracy of contributions to the project's BIM model, intellectual property rights and risk allocation; neither document revolutionizes existing standards of risk allocation or intellectual property rights. Nevertheless, these documents reflect important developments in taking the mystery out of building with BIM.

1. CONSENSUSDOCS 301 BIM ADDENDUM

ConsensusDOCS, a coalition of several construction associations including the Associated General Contractors of America, published the ConsensusDOCS 301 BIM Addendum in June 2008. The most interesting aspect of the ConsensusDOCS BIM Addendum is its requirement that project participants meet and confer, within 30 days of execution of the owner's contract with the designer or contractor/construction manager, to agree upon a "BIM Execution Plan" that will address several project-specific BIM issues. The BIM Execution Plan is intended to include the expected content and required level of detail of model information at various project milestones. In addition, the BIM Execution Plan outlines the procedures and protocols that project participants must follow to ensure effective downstream of the BIM model information.

2. AIA E-202-2008 BIM PROTOCOL EXHIBIT

The AIA released the E-202-2008 BIM Protocol Exhibit in October 2008. At the heart of the AIA BIM Protocol Exhibit is the BIM model element table. The model element table lists each project model element (e.g., substructure, shell, interiors, plumbing, HVAC, etc.) together with the party responsible for contributing the model content for each particular element. The table also shows the corresponding level of detail to be provided for each model element based on five progressive levels of development (LOD). The LODs specified in the AIA BIM Protocol Addendum can be roughly categorized as follows: LOD 100 (similar to development at the conceptual design phase); LOD 200 (similar to development at the schematic/design development phase); LOD 300 (similar to development at the construction document phase); LOD 400 (similar to development at the construction phase); and LOD 500 (essentially, the finished construction). The users of the model elements are authorized to "rely on the accuracy and completeness of a model element consistent only with the content required for the LOD…"

It is important for participants to anticipate potential issues and to establish a detailed BIM protocol before the project gets underway. Time, experience, and litigation will influence BIM protocols of the future. However, today, the ConsensusDOCS and AIA BIM documents represent important steps towards realizing the full potential of BIM. ■

ZETLIN & DE CHIARA LLP

2009 Volume 15 Number 1

Quarterly Newsletter Publication from
Zetlin & De Chiara LLP
Counselors at Law

- 801 Second Avenue
  New York, **New York** 10017
  T 212.682.6800
  F 212.682.6861
  www.zdlaw.com
- 900 Merchants Concourse
  Westbury, **New York** 11590
  T 516.832.1000
  F 516.832.2555
- 80 Bloomfield Avenue
  Caldwell, **New Jersey** 07006
  T 973.364.9900
  F 973.364.9901
- Six Landmark Square
  Stamford, **Connecticut** 06905
  T 203.359.5733
  F 203.359.5858
- 555 West 5th Street
  Los Angeles, **California** 90013
  T 213.996.8333
  F 213.996.8322