

# Real Estate Journal

THE LARGEST WEEKLY COMMERCIAL/INVESTMENT NEWSPAPER COVERING THE STATE

## Avoiding the next green wave: Green disputes on design, product, certification and owner/tenant



Steven Brittan

### INTRODUCTION

Why is the AEC/OO industry so slow to change the way they do business and work together? Are we failing in some ways to learn from those mistakes that guided us through 40 years of complacency? What are the positive forces in our industry? Burt Hill believes we can affect an accelerated positive change within the AEC/OO industry, both in the productivity and the design quality and lifecycle performance of our buildings. The magnitude of our impact, like that of other leading owners, designers and builders, will not be known for some time.

### Summary Position Statement

We must adopt and promote an integrated project delivery model that includes shared risk and reward partnerships between stakeholders, advanced technology and the appropriate legal and financial structure to further improve the construction product, develop more sustainably and ensure the future success of our industry.

### Industry Status

#### BIM before IPD

Since 2003, leaders in the A/E/C industry have steadily increased their investment in Building Information Modeling (BIM) technology and expertise. Only recently has 'Integrated Practice', or 'Integrated Project Delivery' (IPD), taken center stage. If IPD is the principal business driver behind positive change in our industry, is it a problem that it lags significantly behind BIM in its development? Is it a problem that there are many messengers delivering promises based on diverse definitions of BIM and IPD? If we use

this as a crutch and an excuse not to move forward, then it is a problem that must be addressed.

Why are we so slow to change?

40 years of learning, unlearning, relearning, building and rebuilding.

This change will not come about through one singular movement, nor will it come about overnight. There are so many moving parts that at times the concept of a unified forward-moving industry seems impossible. There is an entrenched history of fragmentation which is why the time is ripe for change.

The biggest proponent for change is coming primarily from the owners, developers, and institutions of real estate. They are tired of seeing their investments diminishing in value before they are completed due to lack of interoperability between the architects, engineers and contractors. Over time, owners also see their buildings' hidden flaws after occupation and long-term use, furthering diminishing their faith in the construction team to provide a reliable product.

There is no shortage of data, statistics, and indicators for how poorly the A/E/C industry is doing. With over 750,000 construction companies, it is referred aptly by one author as the "largest surviving Mom & Pop industry in the US." Owners are guaranteed to see a loss-typically anywhere between five and thirty percent - in their hard costs on any given project.

There are many reasons for these inefficiencies, some of the overriding ones being that the architects, engineers, and contractors are contractually bound to protect their own business and not include or share any risk (or reward) with each other. The closest model to sharing risk may be the Design/Build approach, but this has flaws in itself, and still favors the contractor over the architect. Australia has developed a shared risk/reward model sometimes known as the "Alliance Contracting System" which supports the A/E/C and O shared project delivery approach.

Change is inevitable. No amount of opposition will stop it for the simple reason that the A/E/C triad is anachronistic and dysfunctional on multiple levels. The next set of logical questions is: how long will it take for our industry, each stakeholder-profession, and firm to change?

At each level, this will depend a great deal on several key factors:

Alignment: Our ability to align our visions and garner substantive support from all stakeholders

Process Reengineering: Ability to intelligently and collaboratively make deep and substantial changes to our core business processes

Defragmentation: Willingness to work together

Thoroughness & Commitment: Willingness and ability to commit the time, money, and expertise to changes in our business, practice, and use of technology.

## AGENTS OF CHANGE

There are several key agents or proponents of change that are forcing the AEC industries to adapt and alter their conventional modes of business, including the increased demand for environmentally-friendly construction, increased costs, and availability of new technologies.

### The Green/Sustainable Movement

The pervasive moral and ethical "Green" movement has added impetus to the AEC profession to better respond to the needs of a dying planet. Sustainability, although often abused as a term, has for the most part moved beyond being a "buzzword." While the USGBC has unified a strategy for green building technologies and processes, the LEED rating system has been flawed and needs to move from a "checking the box" system to a more holistic evaluation of credits.

### Rising Construction Costs

As the price of gasoline, concrete and other construction materials continues to rise, and simultaneously the fallout from the current housing and credit crisis makes construction financing more difficult to obtain, owners and institutions are demanding better business practices, improved cost control and more accountability throughout the building process. Additionally, reduced A/E/C profit margins and increased liability on construction services firms has lead the industry to demand this change at as great a rate as our clients. The A/E/C industry is markedly behind other industries such as manufacturing and automotive, and would benefit from applying best practices from other industries, such as LEAN manufacturing, to our own business to not only deliver a better product but become more profitable as well.

### Technological Advances

The availability and ongoing improvement of BIM technologies and increased use of early stage performance analyses is also not only supporting the move toward IPD, but also provides the ability to deliver more sustainable and cost efficient buildings. Technology is now allowing us to achieve multiple key goals simultaneously.

### Vision Statement

Recognizing the need for change, Burt Hill has over the past three years pushed the boundaries of technology and practice. These advances are being made in applications of new technologies, materials, methods and processes. For effective change to happen, our methods will need to change on all these levels, in other words technology alone cannot provide the fix; it has to be comprehensive and holistic change to be successful.

#### THE NEW PARADIGM: From Silo to Shared

The traditional, fragmented A/E/C model, where each party completes its portion of the project separately, has not only proven inefficient and dated but can be blamed for the gross cost and time excess that has plagued the construction process for many years. It is incumbent upon us to self-police and change the way we do business to improve our product.

One of the primary causes of inefficiency in the building process is the independent - often adversarial - relationship between the architectural and construction teams on a given project. In this model design decisions are prolonged, information remains undisclosed between parties and deadlines and budgets are often compromised. To effectively address this, all stakeholders must come together to affect change across all components of the building cycle and promote integrated project delivery and shared responsibility as the new industry standard practice.

### Process Innovation

While BIM and modified and adapted contract documents provide the means through which integration is achieved, they are not the catalysts for change. Rather, improved technology and responsive legal procedures merely support what has to come as a shift in perspective and a complete evolution in the business process. All concerned parties must take the approach of working together to achieve the common goal of delivering a successful project. This requires information sharing, transparency and collaboration from the start of the project through to its completion - in addition to implementation of advanced technologies and appropriate contracts.

### Long-Term View

This migration from a silo model to an integrated platform requires change at all levels, beginning with development decisions and project team selections. Developers should aim to engage their architectural, engineering, and construction teams far earlier in the project lifecycle, to begin a collaborative and iterative development process from the site selection and strategic planning phases tied into the business or institutional business goals. The design and construction community must adopt a more active role in promoting the use of BIM and encourage meaningful dialogue and information sharing between stakeholders.

We also must educate our clients and the development community on the benefits of integrated project delivery and the significant cost and time savings it can provide. Between the technological capabilities and recently developed AIA and AGC contract documents, the necessary infrastructure for successful migration to integrated project delivery is slowly coming into place. It is the paradigm shift amongst key stakeholders that must drive the process forward.

### Integrated Technology

As the design delivery platform moves from 2-D, non-intelligent based modeling to 3-D object-oriented modeling with database capacity, our ability to integrate between stakeholders is significantly increased. Technology has allowed us to incorporate data from a variety of sources into one central repository so that costing, scheduling and logistics can be linked up with performance analysis, design and

engineering specs, shop drawings, construction documents and other key elements. Updates can be made by various parties simultaneously, allowing for a much more intelligent and informed design process, a decrease in expensive and significant late stage change orders, and improved performance of the built project.

### Promoting Sustainability

Technology has advanced sufficiently to allow for higher accuracy in the performance of buildings, what is sometimes termed "performance-based design". This allows real time analysis in a virtual computer model of everything from energy modeling, day-lighting and wind and solar impact on a building. This advancement is spurring new thinking of the integration of materials and building technologies such as security systems and IT and HVAC management systems that will be integrated into buildings so they may be better managed and more efficiently operated.

### Conclusion

While this type of change is complicated, multi-leveled and intricate, it is far from impossible. With the understanding that each project and client is different, we must take an iterative approach to adopting this new methodology and always remain adaptable, fluid and flexible. In order to take all the stakeholders in the construction process forward, we must have a solid understanding of how each organization's business will benefit from this new process. It is our responsibility as architectural professionals to educate the industry and our clients and clearly communicate the value to each stakeholder's bottom line, as well as our ability to deliver a more sustainable, better performing product.