



THE NEW PARADIGM

AIA PROJECT DELIVERY KNOWLEDGE COMMUNITY

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As a profession, we are facing a great and exciting challenge. Not since the invention of the elevator have we seen such opportunity for fundamental changes in every aspect of our profession. The new buzz words and phrases include: “Integrated Project Delivery,” “BIM,” “Design-Build,” and “Sustainable Green Design.” The intent of this article is to provide an overview of the interlocking relationships and opportunities provided by the changes in how we practice.

Integrated Project Delivery as defined by the AIA in their publication “Integrated Project Delivery: A Guide” is as follows:

“IPD is a project delivery approach that integrates people, systems, business structures and practices into a process that collaboratively harnesses the talents and insights of all participants to optimize project results, increase value to the owner, reduce waste, and maximize efficiency through all phases of design, fabrication and construction.

IPD principles can be applied to a variety of contractual arrangements and IPD teams can include members well beyond the basic triad of owner, architect, and contractor. In all cases, integrated projects are uniquely distinguished by highly effective collaboration among owner, the prime designer, and the prime constructor, commencing at early design and continuing through to project handover.” (1)

The essence of this definition is the establishment of a fully integrated project team, in which each participant becomes a stakeholder. It brings together the Owner, the Design Team, and the Constructor, all at the very inception of the project with each bringing their individual strengths and sharing in each decision as the project unfolds. Through this approach the collaborative and shared benefits make for a stronger bond and a more successful project.

The second definition “BIM” or “Building Information Modeling” is a tool for the development of the project by all stakeholders in “real time.” It is the creation of a computerized model of the building, which is accessed by Owner, Designer, and Constructor. Changes, enhancements, clarifications, etc., appear simultaneously to each stakeholder. While this approach adds

efficiency and therefore value to the project, it clearly raises issues of document integrity, ownership, and liability. Each of these complications must be recognized and fully addressed in the development of the team's contractual relationships.

The third leg of the new pyramid is "Design-Build." By definition, it is a method of project delivery wherein a single entity contracts with the Owner for provision of both design and construction services. This approach can take many forms, but the two most basic are:

- Architect led, where the Architect assumes the role of the entity. This approach offers the greatest protection to the owner, in that the design professional has a direct contractual relationship with Owner, protecting the fiduciary relationship between Architect & Owner.
- Builder led, where either the entity or the Owner would enter into a contract with the Architect. The preferred scenario in this approach would require a tri-partite contract between the entity, the Architect, and the Owner. This preferred approach protects the fiduciary relationship between the Architect and Owner, which might be compromised by a direct contract between Architect & Entity.

This provides a unified approach to all aspects of the design & construction process. Under this process there is a commitment to design standards or guidelines, within an agreed upon budget and schedule.

There are many advantages of Design-Build and other non-traditional collaborations. Owners, both private and public, today increasingly are demanding that their projects be accelerated to provide a quicker return on their capital investment. Decisions whether to proceed with these investments are based on exhaustive cost/benefit analysis. The Owner's decision to proceed with a project is based on the trust that the Building Team can deliver the project within these assumptions. The challenge to the team is to quickly and creatively address the program needs of the Owner, while respecting the financial realities of the project pro forma.

The process requires an honest dialogue between all Team members from the very inception of the project. Before the first line is drawn, the Builder should analyze the Owner's conceptual budget and guidelines, and evaluate how realistic the Owner's expectations may be. The Architect must then balance the aesthetic and spatial expectations of the Owner, and with the assistance of the contractor, further confirm or challenge the Owner's budget.

Recent economic turbulence has rendered typical allowances for escalation unreliable. As the project progresses, the Builder must advise the Team as to the current market condition of particular building materials and systems. The Team must then quickly analyze the economic and constructability impact of different solutions, testing them against the limitations of the overall project budget.

The marketplace also presents challenges in terms of material availability. The Builder must keep the Team apprised of long-lead items, or potential shortages. The Team can address these delivery issues by the sequencing of bidding and procurement of the project components. The Team should focus on the critical items in the design process to allow them to be completed

ahead of the balance of the project. In the typical Design/Bid/Build process, months can be lost, as the entire project package has to be completed before it is released to the market.

Finally, the process presents the opportunity for the key members of the building process to work in collaboration towards the benefit of all parties, avoiding adversarial relationships. It gives the Architect the opportunity to design efficiently to the budget, without going through exhaustive redesigns. It gives the Builder the opportunity to make suggestions that can benefit price, schedule and constructability early in the process. It gives the Owner the best value for their capital investment, at an accelerated pace. The positive balance of all three entities results in the success of the process.

Sustainable Green Design Issues are most easily dealt with early in the process, a scenario best addressed under a collaborative approach.

As I have written in “Architect-Led, Design-Build, and Green: Ensuring Successful Project Delivery” as published on the AIA’s Soloso Web Site:

“Sustainability is important to the built environment. Buildings contribute over 40 percent of the impact on global warming and greenhouse gases. Sustainable design includes the following:

- Reducing fuel consumption
- Recycling resources within the building systems;
- Designing with renewable or recycled materials.

All of these elements are relatively easy to accomplish within the design-bid-build process, but are more readily achieved when handled through design-build.

Other green design issues include:

- Reducing fuel consumption by designing with efficient systems;
- Selecting and installing insulation for its greatest use in limiting heat gain and loss;
- Specifying glazing to provide the most natural light and ambient warmth;
- Integrating lighting with natural light, and selecting lamps with greater efficiency;
- Selecting mechanical systems based upon their use of renewable resources;
- Geothermal, solar, passive and hydro-power, are proven systems;
- Recycling storm and non-sewage waste water;
- Specifying green roofs to utilize storm water and provide significant insulation, thereby reducing the need for more energy to heat and cool buildings;
- Specifying renewable or recycled building materials that leave a lasting supply for future construction.

These issues are readily achievable as part of an integrated team approach to the design and construction process. Architect led design-build affords the opportunity to see this process through to fruition by providing the platform for detailed team evaluation, from project inception through completion.

Design-build is an effective way to achieve sustainability, meet desired design goals and ensure project success.” (2)

Through adoption of these new tools and a clear recognition that the roles of the stakeholders are rapidly evolving and the lines of responsibility becoming more intermingled, we have the opportunity to develop new models for truly achieving a broader definition of “Design Excellence.”

(1) “Integrated Project Delivery: A Guide”, Version 1, Copyright 2007, AIA National/AIA California Council

(2) “Architect-Led, Design-Build, and Green: Ensuring Successful Project Delivery” as published on the AIA’s Soloso Web Site

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