

## Engineering

# Integrated project delivery and design software to become the 'norm' of the future

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Just as designing "sustainably" or to LEED Certified standards has become the standard approach in most projects, the usage of design software like BIM and Revit is the next logical step in the design process and the move to Integrated Project Delivery, or IPD, is gaining ground. Even though many projects are not designated for LEED Certification, many architects and engineers are designing them to sustainable design levels simply because that is the right thing to do.

The continuing demand that projects need to be done more quickly, more efficiently and at less cost is driving the move to the usage of these technologies and approaches. The traditional design-bid-build method often fosters conflicting interests and clashing incentives amongst the project participants, the owner, the design team and the construction team. Without a cohesive team pursu-

ing mutually agreed upon goals, you can have an adversarial environment, which can impact the productivity and efficiency of the project and lead to project delays, cost overruns, eroded profits, and costly claims.

Partnering, collaboration between the owner, the design team, and the contractors is not a novel idea but it is inherently flawed because it is non-binding. Partnering focuses on developing inter-organizational trust and communication as the foundation of the cooperative relationship between owner and the project consultants. These are the basic attributes of these design technologies and approaches but these processes take the level of cooperation to a deeper and more defined level.

Building Information Modeling (BIM) is a technology that supports the delivery of projects in a more collaborative and integrative way. Collaborative, integrated teams are using building information models in a cooperative, computable way to achieve better decision-making. Collaborative decision-making strategies are, of course fundamental to the IPD process.

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***The American Institute of Architects defines Integrated Project Delivery as a "project delivery method distinguished by a contractual agreement between a minimum of the owner, design professional, and builder where risk and reward are shared and stakeholder success is dependent on project success." IPD breaks the traditional mold by financially incentivizing a collaborative approach to a project, an approach that paves a path to project success for all of the participants.***

shared and stakeholder success is dependent on project success." So IPD breaks the traditional mold by financially incentivizing a collaborative approach to a project, an approach that paves a path to project success for all of the participants. So if an alleged design error causes some added costs to the project, the costs are shared as a defined percentage: no claim. If the GC/CM commits some construction snafu, the costs again are shared: no claim. If the project meets or beats project goals, which can go beyond budget and schedule and include things like safety record, design rec-

ognition, customer experience, etc., financial reward is shared.

All members of a team of IPD

participants can help develop design schemes, performance criteria and scopes of work, and even develop a collaborative budget for the construction costs. Then, during construction, all of the participants again collaborate in the decision-making process when issues arise relating to scope, budget, material purchases, schedule, conflicts, etc., issues that might impact the cost, timing or other goals of the project.

The AIA has documented a number of successful case studies implementing IPD and the various outcomes of

the projects. These examples prove that IPD can work in the appropriate environment. The AIA defines the necessary characteristics of the process as: Early involvement of key participants; shared risk and reward; multi-party contract; collaborative decision making and control; liability waivers among key participants and jointly developed and validated project goals. It further notes that the following characteristics are desirable for success of the project: Mutual respect and trust

Among participants, collaborative innovation, intensified early planning, open communication within the project team, building information modeling (BIM) used by multiple parties, lean principles of design, construction, and operations, co-location of teams (big room), and transparent financials (open books).

Design professionals and contractors seem willing to become real partners with owners to help ensure a successful project. It is possible that IPD will encourage a behavioral shift towards setting performance targets that can far exceed business-as-usual results.

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