



Staying within the “Circle of Trust” on DB/IPD/EBD Projects

The Key to Success

By Joseph Rietman, CPC

Are you being asked to participate in a fast-tracked project? Do you want to get the best results? There are success factors that have been proven on many projects, large and small, including some “mega” projects, across industries from healthcare to retail. One such system works on programs you may be familiar with, such as Design-Build (DB), Integrated Project Delivery (IPD), and Evidence-Based Design (EBD). The key is building your own *circle of trust*.

It has been proven time and time again that the team needs to start with a clear understanding of the owner’s project requirements and project limits. This is the information that the design-build leader (typically the general contractor) and his team of experts, including the structural engineer, uses to remove roadblocks in the design – before they get integrated into the design and make their way to the field. This analysis process is the phase when overall project costs can be lowered significantly, where potential obstacles are overcome and opportunities exploited. Applied correctly, the team can turn a project that might have otherwise hit minimum yield requirements into an *uber* success. But it all starts with the circle of trust.

In one case, at the programming stage on a recent mega project, armed with the owner’s project requirements, the design-build leader analyzed the risks to the project by leveraging the knowledge and skills of his team of master builders, structural engineers, and industry trade partners (the sub-contractors). The team found that the construction of the structural podium would be on the critical path no matter how the pours were sequenced. The team relied on the expertise of the structural engineer, but also encouraged frank discussions between the structural engineer and the trade subcontractors to find the best overall solution. Instead of just saying “no” to a proposed idea or alternative, which is a common reflexive reaction, the structural engineer respectfully considered the alternative proposals and provided clear reasoning as to why the proposal would or would not be acceptable. Once the reasoning and underlying principles of the structural engineer’s objections were understood, the

subcontractors altered their approaches and price proposals to make them acceptable to all parties. This was an exciting and exhausting undertaking, but one in which constant questioning of ideas and team members was necessary. This approach must be in an atmosphere of mutual respect if you are to build a *circle of trust* environment.

What’s the point? Well, it is critically important to the success of all delivery types, be it DB, IPD or EBD, that the team can rely on each other, and recognize that it is worth the time and considerable effort to discuss and dissect early design assumptions, the various design schemes, and the ramifications of decisions to the designers as well as the subcontractors. Think of it as operating a circle of trust. Putting your own self-interest in front of the team goals or not showing mutual respect are easy ways to exit the circle of trust. As the line in the movie, *Meet the Parents*, aptly states, “once you’re out of the circle of trust you can’t get back in.” For example, on a past project, the team had to be shielded from one of its members who offered no value, was “shady” in his dealings, and in turn warranted no respect. Watch out for these types of individual glory seekers, as they will sink the best high performing teams in no time.

If done correctly, the design-build leader, working within the circle of trust, will be able to bid the structural package as early as the 100% schematic design stage. This may seem very early to most structural engineers who think of fast-tracked in terms of an early foundation package, but it is the key to getting the worked started early and on a fast pace. Obviously, changes will need to be made and the structural design will be revised as the designs of the other disciplines are advanced, but it is worth the additional cost to the design-builder and owner. As the structural engineer, expect to be engaged in this bidding process. The structural engineer brings to the table the continued understanding of the engineered limits of the design and his/her invaluable experiences with the various bidders on past projects. The circle of trust amongst the team is vital to project success.

Definitions

(Wikipedia, February 2016)

Design-Build (DB) is a project delivery system used in the construction industry. It is a method to deliver a project in which the design and construction services are contracted by a single entity known as the design-builder or design-build contractor.

Integrated Project Delivery (IPD) is a collaborative alliance of people, systems, business structures and practices into a process that 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.

Evidence-Based Design (EBD) is a field of study emphasizing credible evidence to influence design. This approach has become popular in healthcare to improve patient and staff well-being, patient healing, stress reduction and safety. Evidence-based design is a relatively new field, borrowing terminology and ideas from disciplines such as environmental psychology, architecture, neuroscience and behavioral economics.

Despite common beliefs to the contrary, the “low” price is not always the “best” price. Knowledgeable owners request *best value* pricing from their master builders, rather than low bids, whenever possible. The structural engineer should be an integral part of the team developing a best value bid package. Some of the most important items that drive the scoring of best value pricing are the logistics of building in confined spaces and finding a cost effective method to keep materials flowing into the site without double handling. As part of the process, the structural engineer will be asked to quickly evaluate and comment on traditional means-and-methods issues. These can include the permissible loads on decks for material storage, the locations of construction joints, the time until delay strips can be cast and so on, to validate the bidders approach as they move closer to the best value bid submission. Therefore, during the preparation and

evaluation of the best value written proposals, and oral presentations, the structural engineer has an important seat at the table as the owner scores all written and oral responses that ultimately end in an award. You see, not only are the schedule, manpower, material, and equipment procurement important aspects of the project, none of these are as important as having a high performing team that has the ability to communicate freely with each other with full confidence and trust.

Pulling the best value structural sub-contractors into the circle of trust is a must next step, called on-boarding. The teaming of the structural engineer and the sub-contractors only grows as the design is completed and the project team is able to reap the rewards of the early decision making, optimization, and budget stabilization. The team is also at a critical stage of the project development, allowing for the last true opportunity to influence cost savings through value engineering or alternate means and methods. During this on-boarding stage, the team relies equally on the structural engineer and the structural sub-contractors. The structural sub-contractor is asked to assist the structural engineer in the development of the project documents by providing detailed constructability reviews of the DDs and CDs, taking into account quantity and quality of materials to ensure an efficient design application. Through this method, the subcontractor initiates design decisions by providing information, estimates, schemes, and recommendations regarding construction materials, methods, systems, phasing, and costs that provide the highest quality building within the budget and schedule. The structural engineer really ought to embrace this aspect of the process, as a “good” design can be transformed into a “great” design using the input and experiences of qualified and trusted partners. What engineer wouldn't like to eliminate most of the construction phase RFIs at this point in the project?

The project is not out of the woods yet... it has been moving fast and the design-build leader may have great controls, but the team needs to be prepared for the things that fell through the cracks due to speed-to-market. For that reason, the structural engineer should expect to be engaged on the project site to perform structural observations at key milestones, and whenever needed to address “hot” and “urgent” items. Again, the circle of trust that has been established to this point is crucial to the structural engineer

trusting the contractors to meet the intent of the drawings, and the contractors trusting the structural engineer to respond to RFI's and field issues in an expeditious manner.

From project pursuit to programming, through design and on-boarding, and throughout construction, the structural engineer can be an invaluable member of the team. If the engineer communicates clearly, is professional and open in dealing with team members, and brings expertise and a can-do attitude to the team, he will stay within the circle of trust. Bottom line, spend the time

to build a *circle of trust* with your other team members. Believe in the other members, and they will believe in you. ■

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