



The Design-Build “White Paper”

Serenity Architecture and Design-Build

I have a long history with design-build projects, having worked as a Project Manager/Project Architect for a large design-build Contractor as part of that Contractor’s in-house A/E team, for many years. This practical, hands-on construction experience has played a major role in my career, and how I practice architecture, and design-build remains a large portion of both his 25 years of project experience, and current workload. I have completed design-build projects in the light industrial, heavy industrial, healthcare, education, governmental, commercial, and aviation sectors, including many sub-sectors within those categories.

The bulk of my design-build experience has been with General Contractor led teams, both competitive bid and direct hire. I would estimate that at least half of my experience has been in the industrial sectors, all types, with the rest being fairly evenly split amongst the other sectors that I list above. Project costs have ranged from \$500,000 to \$100,000,000, give or take. This experience includes office and industrial park developments.

Hopefully this brief paper will educate both you and your potential Owners on the process and why it is a very good delivery option for many project types, as well as issues to watch out for. As with any project delivery method, clear communication is critical. The Design-Build Team must completely understand the Owner’s expectations and must educate the Owner on exactly what to expect, and the Team must be on the same page internally. Case Study No. 1, at the end of this paper, illustrates what can happen when these things do not happen.

This paper includes both my own thoughts and experience, as well as information from other sources, such as the Design Build Institute of America’s Michael Loulakis (*italicized items*) and other DBIA documents.

Please don’t hesitate to contact me to discuss your potential design-build project.

Thank you,

A handwritten signature in blue ink, appearing to read 'Robert Jordan', with a long horizontal flourish extending to the right.

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What is “Design-Build”

Simply put, instead of the Owner contracting with an A/E Firm, having project documents produced, sending them out for bid, and then contracting with a General Contractor to build the project (i.e. design-bid-build), the Owner, instead, contracts with a “Design-Build Entity” to both design and construct the project (i.e. design-build).

It seems that many people believe that design-build is a new or modern invention. On the contrary, this method has been in existence throughout history with the “Architect” frequently serving as the “Master Builder”. As is often the case, “what is old, is new again”.

Why Design-Build? – The Owner

There are many potential positives for the Owner in using the design-build delivery method. These include:

- Minimized risk over design-bid-build with regards to change orders schedule delays
- A single point of responsibility in the Design-Build Team, thus removing the Owner as the “middle person” in disputes
- Potential for reduced cost
- Potential for faster project delivery
- Potential for a much higher quality end product due to direct collaboration between the A/E and General Contractor

As Mr. Loulakis, of the DBIA, puts it:

“The design-build contracting approach alters the design and construction process found under non-integrated systems by offering the owner a single point responsibility for design and construction. This means that the design-build team now assumes ultimate responsibility for the adequacy of the design, constructing the work consistent with the contract documents, and otherwise delivering a project that satisfies the owner’s requirements. It also means that the gap between the less-than-perfect design and construction is now shifted away from the owner and onto the shoulders of the design-build team.

Substituting a cooperative relationship for an adversarial relationship between the designer and builder has been shown to result in success for the owner – with faster project delivery, greater cost certainties and superior quality. The owner also enjoys fewer claims and a more positive project experience.

Many critics of design-build state that the absence of ‘checks and balances’ is a primary drawback of the system, claiming that the owner is at the mercy of the design-builder. This argument ignores the fact that because of the single point of responsibility liability, a design-builder is incentivized to ensure that it provides a high-quality product to the owner. It also fails to recognize that many owners will use either in-house or external professional assistance in administering the design-build contract and monitoring the design-builder’s performance. Notwithstanding the fact that there are, in fact, appropriate ‘checks and balances’ in the design-build contract, the successful design-build project is often characterized by a high degree of trust and partnering between the owner and the design-builder, as well as among the members of the design-build team. This requires the design-builder to treat the owner openly and fairly, and to act in the best interests of the owner. Several courts, confronted with situations where the design-builder failed to do so, did not hesitate to find the design-builder liable for breaching this duty.”

One area that I have found to be a potential obstacle on your “standard” design-build project is design. If this is a large high-profile project, or a project for a large institutional Owner, where concern with design is assumed, then this is understood to be a part of the project and planned accordingly. However, many “run-of-mill” design-build projects, such as a typical light industrial project, are not necessarily driven by design and/or the Owner has no intention of being deeply involved in the design. Therefore, it is critical to find out up front how much “design” the Owner expects, and whether or not they intend to be integrally involved in the design process. This affects both pricing and schedule tremendously and may make it infeasible for the project to proceed on a design-build basis.

Of course, this potential issue is largely dependent on the procurement method. Are we “selling” the Owner an 80-90% design, based on up-front meetings and/or RFP; are we hired based on qualifications with design to begin afterward; is there a set up-front budget performance target, or will a GMP be set after design is complete? Again, clear communication, clear definition of expectations, and clear definition of “scope” are all critical.

Why Design-Build? – The General Contractor and The A/E Firm

Given that many Owners are now going exclusively to the design-build format, and the DBIA estimates that by 2021 nearly \$350 billion worth of work will be put in place using this delivery method, it behooves us to seriously consider this delivery method.

For the A/E, there are many advantages which include:

- While there is downward pressure on fees, the scope of work is generally reduced, and the volume of work product is also generally reduced (i.e. fewer details and specifications to produce).
- The comfort of knowing that the drawings have been extensively reviewed by the Contractor prior to construction, thus leaving it much less likely that drawing related issues will come up during construction.
- From a sales and marketing perspective, this format gives us a new and broad sales force in the General Contractors business development efforts.
- Potential for a much higher quality end product, leading to less likelihood of future claims, due to direct collaboration with the General Contractor

For the GC, there are a number of benefits as well, including:

- Control over the design and construction documents assists with budgeting and constructability
- Better control of project schedule with regards to reduced drawings issues and more timely responses
- Greater control over the entire process
- Potential for a much higher quality end product leading to less likelihood of future claims, construction issues, and schedule delays; due to direct collaboration between with the A/E.

It has been argued that the design-build delivery method increases liability for us, particularly since the Spearin Doctrine, concept of Betterment, and negligence standard of care (I am not a Lawyer, so I will leave you to study these items on your own) may not apply and may not give us the traditional “outs” with regards to liability. However, these concerns do not appear to have come to fruition, so far. It has been conjectured that *“The primary reason that the liability experience has been favorable is that when designers work on the same team as builders, they form a constructive, positive relationship. Instead of being adversaries, they are now*

teammates, each party needing the other to succeed in order to ensure project success and profitability. It does neither entity any good to point the finger to the other, as there is no third-party – i.e., the owner – to pay the cost if one of them is right and the other wrong.”

How do the G.C. and A/E Make Design-Build Work?

One of the most crucial factors in making a teaming relationship work, in my opinion, is for both parties to research each other so that they know who they are teaming with, and then working to build a long-term relationship, as opposed to treating the potential project as a “one-off” situation. It is critical to treat each other with trust and respect, to make sure that your partner understands the process, and to ensure that the proper personnel are assigned to the Team. The simple fact is that not everyone is cut out for this delivery method.

We all know the Architect who treats every alternate request, no matter how minor, as a potentially life altering request to compromise his/her professional principles, or that treats every project as a career design project and would not dream of tweaking the façade a bit in order to help compensate for the error in foundation layout; and we all know the Superintendent who would not dream of consulting the pencil pusher in the office because he/she just needs to get s__t done (and right now damnit!) and clearly knows better than the Architect anyway (most of the time, they probably do). The Team has to have Team Members who are willing to (intelligently) compromise, understand that there are other people who know better than them in certain areas, and that we all have the same end goal of a completely satisfied Owner who will come back to us in the future.

Beyond these things, each side must put away ego, prejudices, or whatever, and take the time to understand the other half of the Team.

“Designers need to recognize that most contractors look for quick, practical and cost-effective answers to their questions, regardless of whether they are working on a cost-plus or lump sum basis. They can be easily frustrated when a professional they work with – be it a designer, lawyer or accountant – raises theoretical problems or is unwilling to take a firm position on an issue. Another trait among most contractors is that they are willing to take reasonable risks to increase profit potentials. This will not only include the risks they take in the contracting process, but also how they perform the work. Contractors are often willing to experiment with different systems and processes that could help increase productivity, lower costs and give them a competitive advantage, even if it means that the experiment does not ultimately work. Finally, designers should remember that the best way for any contractor to make money is to finish its work quickly and move resources to other projects. Delays of any type cost Contractors money directly – through additional overhead and damages to the owner for the delay – and indirectly, through trade labor inefficiency and inability to compete for other work. As a result, most successful contractors expect that all team members, including the designer, will cooperate to meet their schedule commitments.

Contractors need to understand that Designers perform their work by thinking through their Owner’s program and then developing solutions to meet their Owner’s needs. This process is conceptual and cannot be expedited by simply adding more manpower. As a result, most designers are not as sensitive to schedule as contractors and, if rushed, may develop designs that are neither cost-effective nor coordinated. Contrary to the contractor, a typical designer is not willing to accept significant risk and is frequently more interested in simply being paid a reasonable hourly rate for its services. This is partly true because designers are not as well-capitalized as

contractors, and do not have the ability to risk significant portions of their fees. Additionally, they are often unwilling to try a new, unproven design concept, since the potential liability can be severe and the reward for success is generally quite limited. A third point to consider is that most designers have little ability to provide free design services as part of a promotional program. The fees that they ultimately receive are so small that it can take five or six successful projects to overcome the costs associated with a single unsuccessful proposal. As a result, they are rightfully skeptical about investing too large a portion of their time chasing “vapor” design-build projects, particularly if the owner wants extensive design before making a selection.”

Further to my discussion on design at the end of the Owner section of this paper, this issue can make or break a Design-Build Team. It is imperative that the Team understands the Owner’s expectations with regards to level of design and level of design involvement, particularly on projects where we are signing up on a preliminary budget and before real design takes place. Not only do these things affect budget and schedule, they can be killers of Team cohesion and unity. If I assumed simple design and 4 meetings, based on available information, but it turns out the Owner expects weekly meetings and integral design involvement of four of its in-house staff (please see case study below), I am in both financial and schedule trouble immediately and you will likely not have the latitude to help me on either fee or schedule, thus creating friction right from the start.

One other way that we can ensure a successful design-build team relationship is to sign a Teaming Agreement prior to writing proposals. This can be as simple as a one-page Memorandum of Understanding addressing things such as exclusivity, or lack thereof, proposal costs, up front work expectations, pricing document expectations, ownership of documents and information, and termination of the arrangement. In all of my years of doing design-build, I have never had a Teaming Agreement in place, but I can sure think of quite a few times where it would have been helpful.

Case Studies

I. Governmental Owner – Recreational Project – Design-Bid Build

This example illustrates a common pitfall, found in design-bid-build projects, that is generally avoided through the use of a design-build format. The project was a waterpark expansion, and the “issue” arose during the construction of the main bathhouse.

A. That Was Not in Our Bid

My Firm’s drawings and specifications clearly called for powered automatic lavatory and toilet flush valves. The circuits on the panel schedules were clearly labeled as being for automatic valves, and the power plans included junction boxes in the toilet rooms and these were labeled with the circuit numbers which corresponded with the panel schedules. As is customary, the power plans **did not** include graphic lines for every single cable leading from each junction box to each valve.

At a fairly advanced point of construction, we noted that the faucets and flush valves had not yet been powered up to which the sub-contractor responded that was not included in his bid. When challenged, he alternately argued that the lack of individual graphic lines from the junction boxes to each valve indicated that either the Owner planned to do that work themselves (why in the world would they do that?) or that it meant they would be powered up in a “future phase” (there were no future phases and phases had never been discussed by anyone.). This despite the fact that there was no record of either event ever being discussed and it being industry standard for the electrical

engineers to show only the beginning and end points, without showing every single cable and conduit.

Ultimately, after much discussion and delay, that Owner, fearing that they would miss their Memorial Day grand opening, acquiesced and paid the extra. Fortunately, they made no attempt to recover from my Firm. As a fairly sophisticated Owner, they knew the drawings were per industry standard, but they also knew that they had to get their project done on time, so they paid.

This project illustrates why many Owners prefer design-build, as this situation is far less likely to happen. In design-build, the Sub-Contractor would have had no “third party” to point the finger at, and no chance of collecting an extra from the Owner. The Owner would not have been in the middle of a tug of war and would not have had the stress of fearing that their project would not open on time, with a major public event already scheduled. There would have been zero incentive for the sub to try and game the system and, likely

II. Institutional Owner - Simple Project – Design-Build

This example shows what can happen on a design-build team, where there is not a true partner relationship, and where you have an Owner who does not understand the process.

On the surface, this project appeared to be the quintessential design-build project: a 10,000 sq.ft. box with little interior content. Basically a “slam dunk”. Ultimately, this project succumbed to virtually every potential design-build pitfall possible, including an Owner who did not understand what they were asking for, despite being a large, “sophisticated”, institutional Owner; and a General Contractor who held little regard for its design-build A/E partner.

A. Flawed Expectations From the Start

The Owner did not clearly state its wants in the RFP, including the fact that they expected weekly meetings for the duration of the project, that they expected their in-house architects to be integral in the design of the project, or that they expected “high design” for the box. Therefore, neither the GC’s proposed price, nor our A/E proposal/fee contemplated them. Our proposal was explicit on the number of meetings (4 total) and we produced 3D renderings of our design concept, which was basic and would meet the proposed budget. Both were based on our experience in design-build, and our understanding of the project, from the RFP. The problem was further exacerbated by the fact that the GC failed to include any of our proposed scope, clarifications, or exclusions into their contract with the Owner. Therefore, what the Owner expected to get and what our team proposed to give were miles apart from day one.

I will note a couple of additional points here: My Firm never had the chance to catch and correct any of these issues, as the General Contractor excluded us from anything other than design-meetings with the Owner. My Firm was not even informed of meetings between the GC and Owner. Further, the Owner, apparently, had made a request to review my Firm’s proposal, prior to finalizing of the budget and contract, but the GC failed to comply. Had we been treated as an actual partner and/or had the GC provided our proposal to the Owner, many (most?) of these expectation issues likely would have been eliminated prior to kickoff.

B. Flawed Budget From the Start

The Owner published a proposed budget that was too high for the project. They were questioned but maintained silence until after bidding. Our GC Partner came in \$1M less than the proposed budget. The Owner then reduced the budget by \$2M, or \$1M less than the GC's bid, after bidding. Our GC decided to continue on with the new Owner budget, believing it could reduce the scope of the project to meet the budget. However, the Owner would not compromise on either size or quality of the project. Leaving my Firm in a very poor position.

The GC ultimately developed a budget that "worked" after which my Firm was regularly accused of continuing to design above the budget, by the GC and in front of the Owner. Example: The Owner's required metal panel wall system came in at "double the budget". I personally was taken to task for allowing the system to be designed despite knowing the budget, even though they knew this system was what the Owner was demanding. The GC offered to solve the problem for the Owner without us and proposed an alternate system that was "similar". When given the new budget, the Owner noted that the wall system was still high. Only then did the GC admit that their sq.ft. number for the original wall system was erroneously based on the Salesman's material only number, thus causing the final installed number to be "double the budget".

C. Who is leading the Team?

The design-build team organization was GC led. However, it became clear at the initial meeting that the Owner expected the A/E to be front and center and take direction directly from them, as in a typical design-bid-build arrangement. The GC did not step in and clarify that this is not how the relationship works. Rather, they would silently listen to what the Owner instructed us to do and then contact me later to say "don't do that, it is not in the budget". The Owner would then berate my Firm for not doing what was asked or promised by us, all while the GC remained silent. Feeling that we were "between a rock and a hard place", not wanting to call out our direct Owner, the GC, we remained silent for a (too) long while. Only later, when we decided that we would not pursue any further partnership with the GC, did we finally inform the Owner what had been happening, but by then the relationship was damaged beyond repair.

D. Summary

There were many other issues with this project, but this illustrates several of the major potential pitfalls that can happen if the Design-Build Team does not operate on the level of mutual respect and a "were in this together" attitude; when the Owner does not clearly state what they want; when the Owner does not clearly understand the process; when the Design-Builder neither objects nor attempts to educate; and when the contract between the Owner and Design-Builder does not explicitly state what the A/E half of the Team intends to provide, or not provide.

I hope this, very brief, paper has provided some useful information to you with regards to the design-build process, it's numerous benefits, and potential pitfalls. Should you have any questions, please do not hesitate to contact me. And, please consider Serenity Architecture Co. as your partner for your next design-build project.