

An examination of an alternate project delivery method: Progressive Design Build



LT. DeLaine Anderson
Florida Institute of Technology
Civil Engineer Corps Research Project – August 2022

TABLE OF CONTENTS

- Executive Summary3
 - Assumptions3
- Background4
 - Defining Early Contractor Involvement (ECI)4
 - Defining Progressive Design Build (PDB)4
- Industry Perspective5
 - AIA Perspective on PDB5
 - DBIA on PDB6
- PDB Approach.....6
- Precedence.....8
 - PDB in Water/Wastewater8
 - PDB in Transportation.....8
- PDB Contract Process.....10
- Adaptability.....13
 - Additional contractual information to consider13
 - Preparation and Execution (Go vs. No-Go Criteria).....14
- Advantages of PDB15
 - Time and Cost Savings15
 - Enhanced Creativity and Innovation16
 - Increased Owner Involvement and Control.....16
 - Adaptability16
 - Subcontractor Engagement.....17
- Criteria & Checklist17
- Limitations.....19
- Conclusion20
- References22

Executive Summary

President Barak Obama once stated, "Executive departments and agencies should use innovative tools, methods, and systems to cooperate among themselves, across all levels of Government, and with nonprofit organizations, businesses, and individuals in the private sector" (Birdsong & Mitterer, n.d.). As the Naval Facilities Engineering Systems Command (NAVFAC) continues to expand their expertise in the construction world and find new innovative ways to deliver quality projects pursuing alternative construction delivery methods will play a part in their success. The NAVFAC will remain competitive with the private sector by following alternate construction delivery methods. Additionally, they will be able to take advantage of the contractor's technological and construction management expertise, gain insight into real-time cost data, and find innovative designs that may not have been thought of before. Furthermore, alternate delivery methods add to the NAVFAC repertoire for construction execution and use the taxpayer dollars the most effectively. The NAVFAC is familiar with Early Contractor Involvement (ECI) and has used this approach. The private sector has begun to adopt a new delivery approach called "Progressive Design Build" (PDB) and compared to ECI, seems very similar. However, the PDB approach brings in the contractor from the start and allows the NAVFAC to design with the contractor and see them as equals rather than adversaries. The PDB approach allows for a truly collaborative effort between parties to provide the best product or service to the customer. This paper will focus on analyzing the PDB approach within the provider sector and how the NAVFAC can begin to adapt this modern approach to building better relationships, providing better quality projects, and gaining expert knowledge in today's construction industry. More specifically, it will define the ECI method and PDB approach, discuss the PDB approach through the eyes of the American Institute of Architects (AIA) and the Design-builder Institute of America (DBIA), provide PDB precedence, examine the benefits, contractual approach, implementation of PDB, develop criteria and checklist for PDB, exam the possible limitations of implementation and provide a conclusion.

Assumptions

For the purposes of this paper, the following assumptions were made:

- The design-builder inherently has a construction team (i.e., a team to complete the construction portion for the project)
- When defining the PDB the owner is often referred to as the private sector firm; however, in some sections, the owners shall refer to NAVFAC/FEC etc.

Background

Defining ECI

ECI is not a new concept in the private sector. The ECI method allows a contractor to be involved in the early phases of the project and potentially start work before the design is complete as described in Figure 1.1. Within this method, the contractor provides the owner's expertise/contract management services for a fee. The final contract price is unknown when the contract is formed because the design has yet to be completed. ECI at an engagement level is utilized to gain insight early and feedback from the contractor regarding the buildability and expert construction expertise.

It is best used for larger and more complex projects because it enables team members to understand the scope requirements early, learn how to manage risk, and create innovative ideas and designs. In addition, contractors are drawn to the ECI approach because they are more involved in the overall process and can be committed to its success. Some of the numerous benefits of the approach are cost and time savings, increased innovation, better integration of the design and construction process, earlier Procurement of long lead items, and an overall better understanding of identity risk by all parties.

Defining PDB

Like ECI PDB fosters involvement of the design-builder/team during the early stages of the owner/requester development of their project. However, it strives to ensure the design-builder/team is immersed in the project development and design solutions by designing the project together. It encourages the most collaboration and partnerships because all entities are significantly invested in the project's success. Unlike a typical design-build contract where the program development has already begun, the PDB approach allows the owner/requester, designer, and contractor to synchronize ideas, cost projections, schedule outlines, and expertise to achieve a guaranteed maximum price (GMP). Compared to ECI, the design-builder designs the project alongside the owner and "progresses" the design to completion as described in figure 1.2.



Figure 1.1¹

What is Progressive Design-Build?

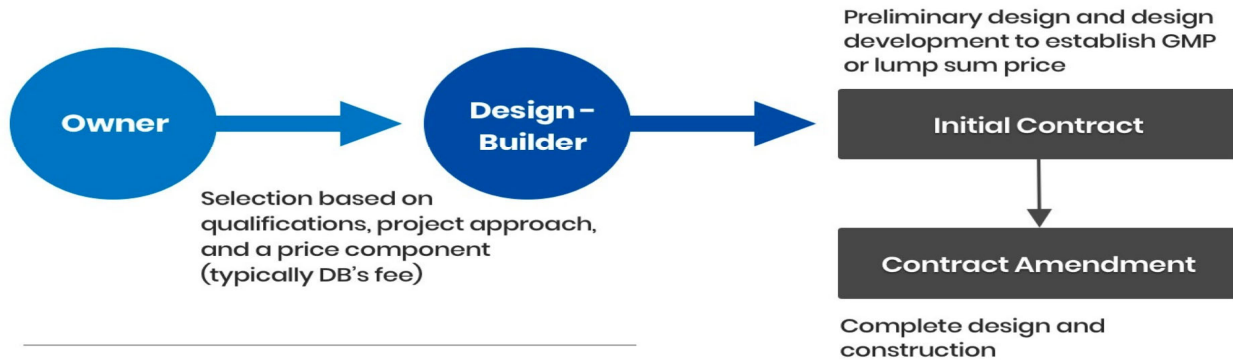


Figure 1.2²

Industry Perspective

AIA Perspective on PDB

The AIA uses the PDB approach because it allows collaboration to develop the project criteria by selecting a design-builder based on their qualifications rather than cost. However, there is not just one way to define the approach since it can be applied in various ways. From the AIA standpoint, when comparing traditional design-build to PDB, "PDB attempts to address other drawbacks one can confront in TDB delivery systems. On the other hand, PDB is focused on a qualifications-based procurement process. This approach allows the owner to select the design-build contractor prior to developing a baseline design, saving time and money. In a PDB project, the owner issues a Request for Qualifications and selects the design-build contractor based on the contractor's qualifications and past performance" (Thomas, n.d.). Moving forward, the design-builder and owner work together to develop the design and the final budget. "This collaboration allows the owner to have greater control and involvement throughout the development of the design and budget." (Thomas, n.d.). The driving factor of the success of the PDB method lies within the selection of the design-build qualifications.

¹ Greg Henry, March 29, 2018. (Progressive Design Build , n.d.)

² SCVU RESCU Program

DBIA Perspective on PDB

DBIA's perspective on the PDB approach has evolved over recent years. The approach has been used on various infrastructure projects. The approach from the DBIA perspective "stages of the owner's project development, ensuring they are part of the project team developing design solutions. This promotes the greatest amount of collaboration between the three key players in a construction contract – the owner, the designer, and the contractor." (DBIA, 2016). According to the former chief of Maryland State Highway Administration's Innovative Contracting Division and current Deputy Executive Director of DBIA, "Since the design-build team is working collaboratively with the owner in PDB, risks can be identified and mitigated earlier in the design phase resulting in a GMP that reflects the actual cost to construct the project." (DBIA, 2016). The DBIA has already witnessed positive results in the PDB approach through various infrastructure projects and will continue to seek suitable projects as they arise.

PDB Approach

Progressive Design Build is a project delivery approach where the design builder and is selected based on qualifications rather than cost driving factors. Like the Integrated Project delivery (IPD) the design team will go through the process of validating the project scope, schedule, and cost are achievable and based on a mutual agreement the owner/requester, design-builder, and contractor will move forward to "progress" the project to a specific point the GMP and schedule are locked in place. The approach allows a flexible procurement and contracting approach that has recently been used in the private sector. DBIA has identified several core features of PDB. Those features are:

"The design-builder is retained by the owner early in the life of the project, and in some cases, before the design has been developed at all." The design-builder is selected primarily, if not exclusively, on qualifications, and the design-builder's final project cost and schedule commitment is not established as part of the selection process. The design-builder delivers the project in two distinct phases, with: (a) Phase 1 including pricing level design development,

preconstruction services and the negotiation of a firm contract price (either lump sum or guaranteed maximum price) for Phase 2; and (b) Phase 2 including final design, construction, and commissioning” (A DESIGN-BUILD INSTITUTE OF AMERICA PUBLICATION, 2017).

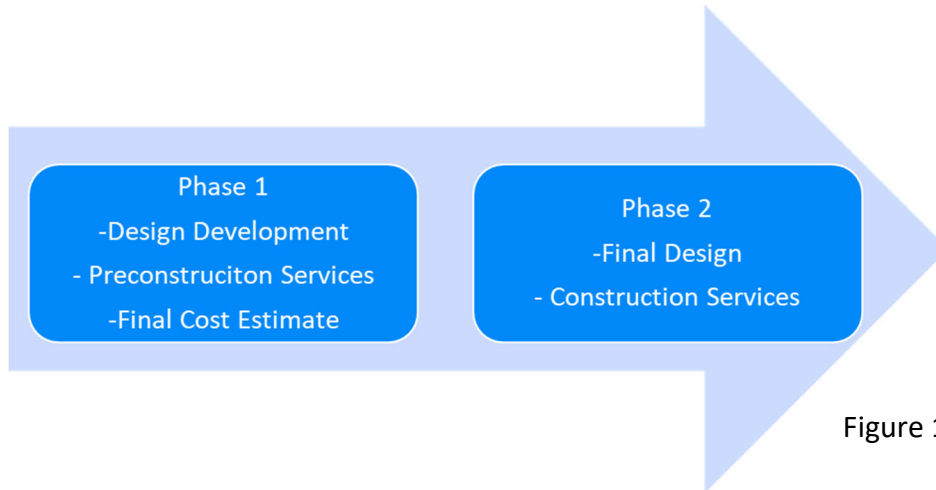


Figure 1.3

Unlike traditional design build, PDB is broken down into two distinct phases. As listed in Figure 1.3 Phase 1 includes collaboration between the design-builder and the owner to develop the design, discuss, define, and execute preconstruction services, and agree on a final project price. The final price can be either a lump sum or a GMP. At the start, the design-builder collaborates with the owner to build upon the existing scope, basis of design, and developing program requirements. All associated cost and decisions are centered around real time cost, schedule impacts, and life cycle impacts. During the process both the owner and design-builder remain transparent, provide open communities, work together to ensure the owners project needs are being met. When both the owner and design-builder agree the design has appropriately met the project needs appropriately; the design-builder will provide a final cost estimate including all phase 2 services. The cost of services provided in Phase 1 can be billed hourly, awarded under a GMP or lump sum, or any other negotiated way of payment. The design team and owner should work together to agree on significant milestones. At a bare minimum, one major milestone should occur when the design has developed between 40% to 60%.

Phase 2 services include agreeing on the final design and the actual construction services. Once the owner and design-builder agree to the project price, schedule, and scope;

the design-builder will finalize the design and proceed with construction. As with most construction projects, the design-builder will be held responsible for testing, commissioning, and other services already agreed upon or outlined in the specifications. If there is no agreement reached at the end of phase 1 regarding the project price, scope and schedule the owner can choose to take the design and pursue a design bid-build contractor with another contractor or another delivery method the owner sees fit. Similar to design build the PDB approach; allows for work to begin before the final design is complete if its most advantageous to both parties. Early work can include but is not limited to acquiring long lead items, sitework, or acquiring subcontractors.

Precedence

PDB in Water/Wastewater

According to a division leader from Haskell, PDB has genuinely impacted the water and wastewater industry due to the deliberate collaboration on the delivery method. The PDB delivery approach strives to drive interaction between the design-builder and the owner as much as possible. The approach provides team collaboration by forcing a high level of input and control while simultaneously allowing the designer the ability to innovate in a creative environment. A recent project in Jacksonville, Florida, used the PDB approach to upgrade a water treatment plant and a portion of a conveyance system. "The design-build teams assessed and enhanced all potential outcomes for the project, which resulted in the project scopes being altered. In addition, the PDB approach allowed for a treatment plant to be selected based. Not only on current capital costs but long-range operation & maintenance costs and operational benefits" (America, 2016). As a result, the client stated that the early knowledge of the project cost provided a significant advantage for planning purposes. The approach reduced the project's complexity, saving millions of dollars due to the upfront expertise and input from various stakeholders.

PDB in Transportation

PDB has recently become utilized in the transportation industry. The I-270 corridor project in Maryland is heavily traveled and requires innovative ideas to address the significant traffic congestion. The Maryland department of transportation (MDOT) worked closely with its private sector partners to provide the riders with the most significant benefits. The project sought to "increase vehicle throughput, reduce

delays and increase reliability. Because PDB was inherently bold, it was thought to be a perfect delivery approach for this project. The PDB approach allowed the best ideas from the contractor and engineering worlds to be put on the table timeously. As a result, the PDB was the only delivery method to provide "the desired outcome, including cost efficiency to MDOT, while reducing risk to potential design-build teams." (America, 2016). The project was completed in two phases, including design, acquisition, relocating utilities, construction services, and construction management services. There were several standalone construction projects with several GMPs. Within each price proposal, the design-build team provided their design, preconstruction fee, and construction management fee with the rest of the fixed price balance for the physical construction of the project. As proposals were evaluated for fairness, technical proposals were rated separately. Once there was an agreement on the technical ratings, the price was considered, and a trade-off analysis began. The PDB provided "the openness of the contract scope, encouraged the best technical and most innovative and creative solutions from each design-build team" (America, 2016).

Additionally, a collaborative effort between the Kansas department of transportation (KDOT) and a design-builder to increase capacity to address transportation demands, preserve Kellogg Avenue for future expansions, and address consumer needs³. One of the biggest reasons for this approach was for KDOT to request a proposal that did not require a considerable design effort, unlike traditional design build. The proposals would be scored on "A best-value formula considerate of the technical proposal, price proposal and the interview will be defined in the RFP to establish the preferred propose" (The Eisenhower Legacy Transportation Program (IKE), 2022). Technical Proposal to develop independent cost estimates that would validate the cost provided by the design-builder. The alternate approach was anticipated to expedite the delivery of the project by working with the design-builder to "progressively" advance and refine the design and construction price until a GMP was agreed upon.

According to (The Eisenhower Legacy Transportation Program (IKE), 2022), the project would occur in 3 separate phases: planning, preconstruction, and construction. The planning phases were triggered by the execution of the design-builder and KDOT contract agreement. Within this phase, environmental impacts are conducted, there is a fair NEPA process, and no unnecessary risk is put on the design-builder if the results change the project significantly. The preconstruction phases consist of the collaboration between the design-builder and KDOT to develop the scope, quality, delivery of the project design, schedule, risk identification and mitigation and proposed approach to work packages. The construction phase consisted of the design-

³ US-54 | US-400 – SEDGWICK AND BUTLER COUNTIES (EAST KELLOGG | K-96 TO 159TH STREET PROJECT) PROGRESSIVE DESIGN-BUILD PROCESS

builder construction management approach, subcontracting approach, risk management, and innovative concepts during the entire phase⁴.

Overall, the PDB approach for the KDOTs project was used as an alternative delivery method to select the design-builder based on qualifications. Once selected, KDOT and the design-builder would naturally "progress" towards the design and construction cost. The approach allowed for:

- Selection of the design-builder early on
- Design-builder sharing expertise throughout each phase
- True project collaboration from start to finish of the project scope, cost, and schedule and the ability to modify along the way
- Design innovation due to the qualifications of the design-builder and
- Appropriate risk mitigation due to open communication of accepted risks, proper risk allocation, and development of a detailed risk register

PDB Contract Process

Selecting the right Team. The PDB approach requires all team members to be fully committed to the project's success and be willing to collaborate with each other. Therefore, selecting the right team members on both the owners and the design-builder side to pursue a PDB approach is of utmost importance. All team members should be selected by who has the best chance to meet the owners project needs. In addition, team members should be experienced, qualified, transparent, and dependable in their fields.

Contractual Approach. Choosing a design-builder based solely on qualifications (past performance) rather than cost can be risky; however, the collaborative approach has proven to outweigh solely choosing a contract on qualifications. The only price items that should be presented are the fees or compensations related to the Phase 1 services; however, this information does not play a factor in evaluating the proposals the design-builder presents. After determining the most qualified design-builder the owner will open the bids to discover the Phase 1 cost for services. The owner and the design-builder can negotiate the Phase 1 cost as they see fit.

⁴ K96 to 159th Concept Report

A common approach to award through the PDB approach is to use the “two-step method.” Step 1 of the two-step method assess the qualifications of a shortlist set of design-builders. The shortlist is made up of design-builder who have established quality past performance and have experience/qualifications in the scope of work. The second step considers the technical proposals and assess how the design-builder plan to meet the owner’s needs.

During the second step there is a significant focus on who will make the best team. Formal interviews assist in the efforts of selecting the right team. The interviews give the owner a sense of how the design-builder interact with their team and how they will potentially interact with the owner’s team. They shed light on what the collaboration will look like and how cohesive the team will be.

Progressive Design-Build Process

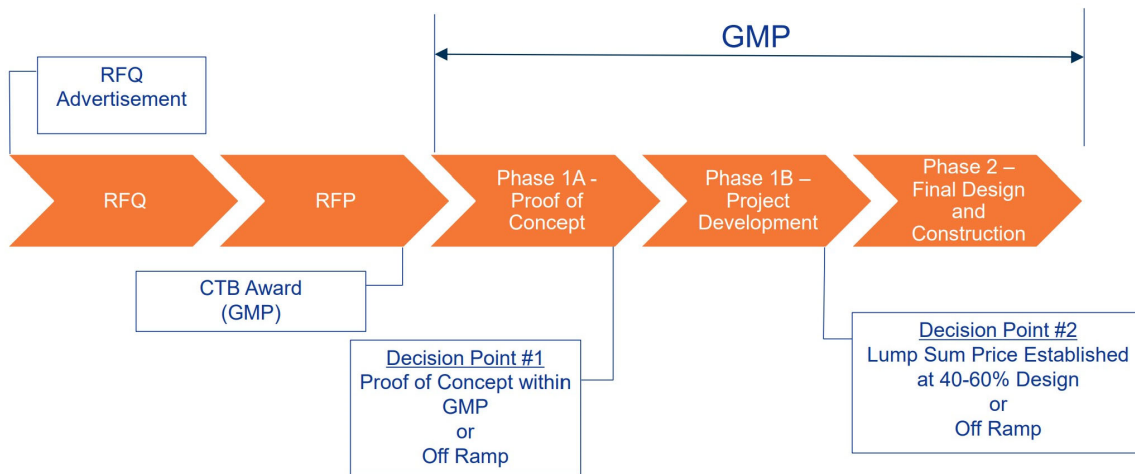


Figure 1.4⁵

⁵ Figure 1.4 Virginia Department of Transportation (VDOT) PDB Process, Commonwealth Transportation Board (2019)

VDOTs PDB approach starts with a request for qualifications as detailed in Figure 1.4. Once qualifications are received, they are analyzed to select the best qualified design-builder. Once the qualifications are analyzed the proposals are requested. Once proposals are received the owner awards the project to a design-builder and begins Phase 1A (Proof of Concept). After phase 1; the owner can decide to move forward with the design-builder and move forward with the proof of concept without the design-builder. If the owner decides to continue with the design-builder, they will move into Phase 1B: project development where they will further develop the design together. At the end of Phase 1B, another decision point is reached for the owner to use the “off ramp” or move forward with the final design. The “off ramp” allows the owner to take the design and process with another contractor. In VDOTs approach the “off ramp” can be used a significant milestone. Phase 2 includes the final design agree up by both parties and construction. During the phases, the design-builder will work to develop a GMP.

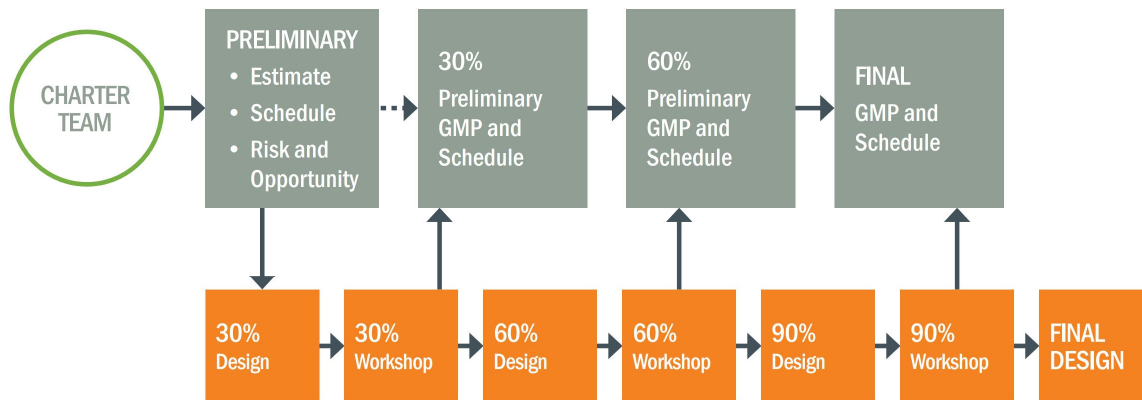


Figure 1.5⁶

Another approach completed by Brown and Caldwell (an engineering consulting firm) is detailed in Figure 1.5; adds additional design workshops in between each design effort. At the start, a team is developed, and a qualified design-builder is selected. Together both the owner and the design-builder discuss the estimate, schedule, and risk of opportunity of the project. Following the preliminary effort, the 30% designs move right into the 30% workshop. The workshops allow for built in flexibility in case changes need to occur. After each workshop, the

⁶ Brown and Caldwell, Progressive Design Build

team sync again to discuss the schedule and update the GMP. Once the 90% design is complete the team moves to final design and can prepare for construction.

Adaptability

There are several ways to execute a PDB contract. One example is to utilize the DBIA Document No. 545 used for Water/Wastewater Project (DBIA, 2016). The services are broken down into Phase 1 and Phase 2. Phases 1 and 2 are broken down below:

| | |
|---------|---|
| Phase 1 | Administrative Information |
| | Details of the scope of services (pricing, design, etc.) |
| | Owners Criteria |
| | Development of contract price (define level of completion) |
| | Development of scope of work (define level of completion) |
| Phase 2 | Complete the design services |
| | Procure all materials, equipment, and construction services for the project |
| | Complete construction of the project |
| | Complete required testing, commissioning, start-up as needed |
| | Provide warranties |

Breaking down the project in phases allows the process to be streamlined by getting a better-quality design that all parties are comfortable with. Another way to address the phases is to award one contract that includes both phases at the start of the relationships. This approach allows early construction to proceed that are already covered in the contract. Regardless, the most important aspect of the contract is to fully understand what services the design-builder will or will not be performing. In addition, the owner needs to ensure the services align and meet their project scope/criteria.

Additional contractual information to consider

- The contract should specifically state the design-builder's level of detail provide cost estimates or models. This should be covered in Phase 1.

- As with most contracts the design-builder should be able to rely on the accuracy of the owner provided information, drawings, and documents. Since both the design-builder and owner agree to work together early on, the design-builder can validate information by an agreed upon cost or benefit to alleviate any issues in the future. Examples can include geotechnical reports or utility location.
- The contract needs to address how the design-builder will execute early construction packages (like a traditional design build set up). It should detail how early construction packages will be authorized, if the design-builder can obtain subcontractors, and if early construction packages are allowed.
- The contract should address how the owner plays a role in selecting the subcontractors and how they will be obtained. This can be detailed in Phase 1 and 2 if the contract is broken down into phases.
- The contract should address how the design build shall submit their proposal for phase 2.
- Determination on how the owner and the design-builder address performance and payment bonds in relation to the phases. As always, legal shall determine the most appropriate course of action.

Preparation and Execution (Go vs. No-Go Criteria)

The below steps can determine if PDB is suitable for a certain project:

1. Each owner that wishes to employ the PDB delivery approach should conduct their own research, fully understanding how PDB will impact the project, understand the project requirement, and be able to clearly communicate the project scope to the design-builder.
2. Partner with PDB expertise to get the design-builder on board early. This ensures the PDB approach is used properly, and the project has the best chance to be successful. Additionally, it shortens the amount of design time upfront by the owner and allows for collaboration on the design between the owner and design-builder. The PDB expert can

also provide cross training to the owner's employees to better help them manage their contracts in the future.

3. Communication with legal early on. Prior to pursuing a PDB approach legal should provide input. The PDB approach considers qualifications as the basis for its evaluation factor rather than price; therefore, the owner should ensure proper regulations, laws, and statues are followed. This can also directly relate to the selection of the subcontractor.

4. Experienced cost estimators. While the owner has access to the design-builder cost expertise; it is important to validate the design-builder cost with their own estimates. The owner shall prepare to have skilled and experienced cost estimates to assist in decision regards the price proposals.

5. Establish a team that is willing to collaborate. Like the traditional design build method that needs true collaboration; not having collaboration in the PDB approach it can lead to the failure of the project if the right team is not selected. Whomever participates in the PDB approach should understand how important collaboration is and committed to the success of the overall project; moreover, because it will set the precedence for future efforts.

6. Determine if there is enough time and funding in place to proceed with the PDB approach.

Advantages of PDB

Time and Cost Savings

The PDB approach unlike the traditional design approach does not require back and forth submissions from the design-builder to the owner; but promotes a revolving design effort of partnership and improved design. Additionally, the owner does not need to take on the cost or time of developing an in-depth project criterion because the "most qualified" design-builder was selected to complete the work. Specifically, "for complex projects like wastewater treatment, PDB allows the design process to inform the next phase concurrently. As a result, it is unnecessary to have answers to every imaginable question before embarking on a complex

project. Furthermore, you no longer need to schedule evaluation periods into the contract because evaluation is built in and ongoing” (MacPherson, 2017).

Enhanced Creativity and Innovation

Unlike the traditional design build method where the design-builder must strictly adhere to the owner’s initial project criteria; the PDB approach allows the design-builder to offer innovation and creative design ideas that the owner may not have necessarily considered. This allows the design-builder to have the autonomy to design the project with the owner and not for the owner leaving room for more inspiration.

Increased Owner Involvement and Control

From the start of the project the design-builder and owner are working hand in hand. The owner’s direct involvement with the design-builder reduced the risk of the scope, budget, schedule, or quality not aligning with the owner's needs. Additionally, the owner can make decisions on things other than cost. Unlike the traditional design build method where the design-builder must balance cost against the scope; the PDB approach allows for decisions based on the project’s best interest. “Most importantly, PDB provides the owner greater flexibility, more involvement, and more manageable control of complex and distinctive projects, by allowing challenges to surface before final pricing is completed” (MacPherson, 2017).

Adaptability

According to MacPherson “It is more adaptable to changes in delivery schedules. In addition, by allowing the design build team to use real-time information, it can dramatically increase their flexibility in designing very specific solutions to sometimes unforeseen problems” (MacPherson, 2017).

Subcontractor Engagement

While the owner and design-builder work together; they can agree to bring in a subcontractor who may have the expertise needed to make the project a success. “PDB improves opportunities for local subcontracting. Since bottom-line cost and contractor risk no longer solely dictate who is selected, owners can make vendor selections based upon quality and capability, not just deep pockets, and risk management.” (MacPherson, 2017).

Criteria & Checklist

| | |
|---------------------------------|--|
| PROCUREMENT/SOLICITATION | <p><i>Can the design-builder be selected, on qualifications?</i></p> <p>Notes: The price of the project will not serve as an evaluation factor which helps simplify the procurement process.</p> |
| PROJECT DELIVERY | <p><i>Can the design-builder and owner coordinate early in the project like ECI? Is there enough time to execute a phased delivery project approach?</i></p> <p>Notes: The owner and design-builder need to work together to agree on a design, cost, schedule, and “progress” the design to GMP. The owner can use the design-builder’s expertise to drive innovation and ensure all their project deliverables are addressed prior to construction.</p> |
| COST AND SCHEDULE | <p><i>Is the design-builder willing to share their estimating team and cost estimates to the owner?</i></p> <p>Notes: The owner should have direct access to the design-builders estimating team allowing for accurate cost estimates and allowing the owner to make informed decisions about life cycle cost and longer-term maintainability. Additionally, this access will allow for a more accurate schedule because both parties agree to something achievable rather than an unrealistic expectation of project delivery.</p> |
| SUBCONTRACTORS | <p>Can the owner and design-builder work together to select a suitable subcontractor?</p> |

| | |
|-------------------------|---|
| | <p>Notes: The subcontractor can be an inherent part of the design-builders' team at the time of award, or they can be procured after with input from both the design-builder and the owner.</p> |
| PROPOSAL | <p>Is the design-builder willing to be transparent about the price proposals?</p> <p>Notes: The owner should have direct access to the price proposal allowing them to be able to make educated decisions based on the price and understands where to properly allocate risk</p> |
| FLEXABILITY | <p><i>Is there flexibility within the construction phases?</i></p> <p>Notes: If it is in the best interest for the project the owner and design-builder are work together to exercise their flexibility to perform construction as the design progresses in the design development phases.</p> |
| CONTRACTING | <p><i>Can the owner agree on one of the following payment methods?</i></p> <ul style="list-style-type: none"> - <i>Cost-plus/GMP</i> - <i>Lump-sum</i> - <i>Conversion from GMP to Lump Sum</i> <p>Notes: Cost-plus, Guaranteed Maximum Price- allows full transparency regarding costs, involvement with subcontractor selection, and shared cost savings. Lump sum can be used if the owner is comfortable with the current proposal as is. Conversion from GMP to lump sum occurs if the owner wants to reduce administrative burden of GMP.</p> |
| PRICE COMMITMENT | <p><i>Can the design-builder provide the owner with a cost estimate at the end of phase 1?</i></p> <p>Notes: The design-builder will be fully committed to the price once they provide it at the end of phase 1.</p> |
| RISKS | <p><i>Can the design-builder work with the owner on the design until the final construction documents are developed?</i></p> <p>Notes: Design-builder collaborates with the owner to develop the design and progress it to the final construction documents.</p> |

Limitations

The PDB approach is deeply rooted in awarding a contract to a contractor solely based on qualifications. However, this is not typically an approach the federal government executes because the FAR requires price or cost as an evaluation factor. Therefore, to move forward, the government could pursue a couple of different options to take advantage of the PDB approach.

1. Exercise Section 825⁷. Section 825 states "at the Government's discretion, solicitations for multiple-award contracts that will be awarded for the same or similar services and state the Government intends to award a contract to each qualifying offeror do not require price or cost as an evaluation factor for contract award." (Defense Department, the General Services Administration, and the National Aeronautics and Space Administration, 2020). This would allow the government to award a contract without using price or cost as an evaluation factor. As mentioned earlier, the MAC can be used for similar services such as infrastructure and utility projects.

2. Exercise FAR 15.304(c)(1)(ii)(a)(b); stating, "The contracting officer may choose not to include price or cost as an evaluation factor for an award when a solicitation— (1) Has an estimated value above the simplified acquisition threshold; (2) Will result in multiple-award contracts (see subpart 16.5) that are for the same or similar services; and (3) States that the government intends to make an award to each and all qualifying offerors. B) If the contracting officer chooses not to include price or cost as an evaluation factor for the contract award, in accordance with paragraph (c)(1)(ii)(A) of this section, the contracting officer shall consider price or cost as one of the factors in the selection decision for each order placed under the contract. "This allows the government to move forward with the PDB approach to award the contract based (a) and utilize section (B) after the contract is an awarded and as the design and GMP progress.

⁷ Federal Acquisition Regulation: Evaluation Factors for Multiple-Award Contracts

3. With proper research, recommend a change to the FAR based on project delivery methods or implement a new "Justification and Approval (J&A) for awarding based on qualifications.

With each method listed above, there needs to be proper research and documentation that the PDB project delivery approach is in the government's and taxpayers' best interest. Each of these changes will take time; therefore, forming a partnership with a private sector or federal entity already pursuing or allowed to pursue this PDB approach will be in NAVFACs best interest. This would enable direct insight into how the approach works and why it works well on a specific project and allow NAVFAC to understand better how to tailor the approach for their needs.

Conclusion

The private sector has noticed significant changes in the market regarding the construction industry. According to RS&H, regarding one transportation project, "It has become challenging for an agency to attract a competitive field of design-build teams to bid on these more complex projects. The reason for the reduced interest has been determined to be one or more factors, including excessive risk transfer, bonding restrictions, and insurance issues. Owners have found that applying successful strategies like progressive design-build can reduce these risks, increase contractor interest, and allow an agency to benefit from innovative design-build methods. Avitabile further states, "Having one design-build contract reduces NEPA compliance issues and can be a significant benefit to an agency on most major transportation projects." (Avitabile, 2022).

In another project, the city of Dalles used the PDB approach to provide several upgrades to their wastewater treatment plant, increase the capacity, and bring the plant into "conformance with the Department of Environmental Quality's criteria for firm pumping capacity and to improve the screening and grit removal process." (Paul, 2020). Furthermore, according to Paul, the PDB approach, "In the case of these environmentally conscious design

features, the flexible and collaborative nature of the PDB process enabled the project team to respond to stakeholder requests, ensuring the final design better reflected the priorities of the client. Public infrastructure projects often impact thousands of lives and therefore are subject to input from various regulatory agencies, elected officials, and communities. Given this reality, the collaborative nature of PDB is a distinct advantage” (Paul, 2020)

Within NAVFAC, there is a constant struggle to maintain outdated utility systems. Utility and infrastructure projects are often forgotten about or neglected due to lack of visibility (in the literal sense). Using the private sector as precedence, utilizing the PDB approach on utility and infrastructure projects would be the best use. The overall success of the PDB approach is centered around the collaboration of the owner and the design-builder. With the loss of the Navy Working Capital Fund, there should still be a focus on the utilities and infrastructure of the various bases. The need for collaboration to restore our infrastructure and design long-lasting projects is paramount.

For the PDB approach to be a success within the utility and infrastructure environment, there are keys to making it work. Selecting the most qualified team on both sides, allowing the design-builder to use its inventiveness and knowledge to develop design solutions, weighing qualifications over price, and looking for the best energy efficiency, resilience, maintainability, and sustainability will enable the PDB approach to succeed. In addition, by using honest communication, mutual respect for both parties, and remaining open about a diverse group of ideas and perspectives, the Navy’s infrastructure and utility projects will certainly reap the rewards.

REFERENCES

- (n.d.). Retrieved from Progressive Design Build : <https://svcw-rescu.org/delivery-method/>
- Defense Department, the General Services Administration, and the National Aeronautics and Space Administration. (2020, July 2). *Federal Register*. Retrieved from Federal Acquisition Regulation: Evaluation Factors for Multiple-Award Contracts: <https://www.federalregister.gov/documents/2020/07/02/2020-12764/federal-acquisition-regulation-evaluation-factors-for-multiple-award-contracts#:~:text=Section%20825%20provides%20that%2C%20at%20the%20Governme nt%27s%20discretion%2C,cost%20as%20an%20evaluati>
- A DESIGN-BUILD INSTITUTE OF AMERICA PUBLICATION. (2017). Progressive Design-Build. *DESIGN-BUILD DONE RIGHT*, 12.
- Avitabile, J. (2022, April 5). *RS&H*. Retrieved from How Progressive Design-Build Can Benefit Infrastructure Projects: <https://blog.rsandh.com/how-progressive-design-build-can-benefit-transportation-projects#:~:text=Progressive%20design-build%20is%20a%20very%20different%20procurement%20model,estimate%20of%20co sts%20is%20requested%20by%20the%20owner.>
- Birdsong, M., & Mitterer, G. (n.d.). Retrieved from Federal Intergovernmental Partnering Program: https://www.irs.gov/pub/irs-tege/federal_intergovernmental_partnering_program.pdf
- DBIA. (2016, June 3). *DBIA*. Retrieved from <https://dbia.org/the-emergence-of-progressive-design-build/>: <https://dbia.org/the-emergence-of-progressive-design-build/>
- DBIA. (2016). *PROGRESSIVE DESIGN-BUILD FOR WATER AND WASTEWATER PROJECTS*. Washington, D.C: Design-Build Institute of America. Retrieved from http://gov.findrfp.com/docs/28495_DBIA_PDB_Agreement.pdf#:~:text=DBIA%20Docum ent%20No.%20545%20Progressive%20Design-Build%20Agreement%20for,Projects%202016%20Design-Build%20Institute%20of%20America%20Page%201
- Henry, G. (2018, March 29). Retrieved from What is Early Contractor Involvement and how does it work: <https://www.turtons.com/blog/early-contractor-involvement>
- MacPherson, R. (2017, February 9). *PRIME Engineering* . Retrieved from THE PROGRESSIVE DESIGN/BUILD APPROACH: <https://www.prime-eng.com/the-progressive-design-build-approach/>

Paul, T. (2020, May 12). *Water Online*. Retrieved from Progressive Design-Build And Public Infrastructure: The Dalles Wastewater Treatment Plant:
<https://www.wateronline.com/doc/progressive-design-build-and-public-infrastructure-the-dalles-wastewater-treatment-plant-0001>

The Eisenhower Legacy Transportation Program (IKE). (2022, April 22). US-54 | US-400 – SEDGWICK AND BUTLER COUNTIES (EAST KELLOGG | K-96 TO 159TH STREET PROJECT). Butler, Kansas, United States Of America.

Thomas, C. (n.d.). *AIA Contract Documents*. Retrieved from
<https://www.aiacontracts.org/articles/6508632-whats-so-progressive-about-progressive-design-build>: <https://www.aiacontracts.org/articles/6508632-whats-so-progressive-about-progressive-design-build>