

WATER/WASTEWATER SECTOR

Design-Build Done Right™

DESIGN-BUILD BEST PRACTICES



in collaboration with:



WATER DESIGN-BUILD COUNCIL
AN ASSOCIATION OF LEADING DESIGN BUILDERS

WATER/WASTEWATER SECTOR

DESIGN-BUILD BEST PRACTICES

Design-Build Done Right™

A DESIGN-BUILD INSTITUTE OF AMERICA PUBLICATION

The information contained in this document is intended for use with *Design-Build Done Right: Universally Applicable Design-Build Best Practices* (hereafter referred to as “Universal Best Practices”) published by the Design-Build Institute of America in February 2014. For a copy of this document, visit <http://www.dbia.org> and go to the “Resources” section.

Like DBIA's *Universal Best Practices*, this document includes three primary sections:

- (I) Procuring Design-Build Services;
- (II) Contracting for Design-Build Services; and
- (III) Executing the Delivery of Design-Build Projects.

Within each of these three sections, you will find the *Universal Best Practices* and implementing techniques as a baseline. The baseline is then modified in two ways:

- (I) Some slight modifications to the universal implementing techniques.
- (II) New implementing techniques, all of which are intended to address the real-world attributes of the water/wastewater sector.

The modifications are shown in **this bold blue font** to help readers easily see the changes.

This document, which combines Universal Best Practices with water/wastewater best practices and implementing techniques, is the basis for Design-Build Done Right™ in the water/wastewater sector.

COVER PHOTO CREDITS

Top Row, Left to Right:

Agua Nueva Water Reclamation Facility, Owner: Pima County Regional Wastewater Reclamation Department, *2014 National Design-Build Merit Award Winner*; **Wilsonville Wastewater Treatment Plant Improvements Project**, Owner: City of Wilsonville, *2014 National Design-Build Merit Award Winner*; **2.0-MGD Nanofiltration Water Treatment Plant Addition**, Owner: City of Dania Beach, *2013 National Design-Build Award Winner*

Bottom Row, Left to Right:

T-Bar Well Field Development and Delivery Project, Owner: Midland County Fresh Water Supply District No. 1, *2013 National Design-Build Merit Award Winner*; **Johnson Controls Florence Recycling Center Stormwater and Wastewater Treatment Facility**, Owner: Johnson Controls, Inc., *2013 National Design-Build Award Winner*; **Stockton Delta Water Supply Project**, Owner: City of Stockton, *2013 National Design-Build Merit Award Winner*



WHAT'S UNIQUE ABOUT THE WATER/WASTEWATER SECTOR?

The water/wastewater sector has five unique features that are central to the consideration of best practices in the procurement, contracting and execution of any design-build project.

First, the characteristics of a water/wastewater owner are substantially different from other public owners. Most water and wastewater projects are implemented on the local level, either by cities, counties or quasi-governmental utilities. As a result, the design-build procurement authority for these owners can be quite complex and affected by state statutes, local ordinances and/or procurement authority created by the utility's board of directors. Adding to the challenge is that many water/wastewater owners have limited capital programs and rely heavily on outside advisors for project development assistance. On the other hand, these owners have significant expertise in plant and systems operations, and have strong views of what technology and process equipment they want to use on their facilities.

Second, the characteristics of a water/wastewater project are quite different from those in other public sectors. Whether small or large, these projects are anything but "cookie cutter" in nature. Projects involving upgrades and/or expansions to aging facilities create challenges regarding how to ensure uninterrupted operation of the facility during construction and integration of new technology and processes into existing plant systems. Greenfield projects generally give owners a wide choice of technology, requiring them to make timely decisions on what to use. And, perhaps most importantly, the raw water/wastewater quality of each project is different. While this creates substantial opportunity for innovation, it also creates execution risks, particularly relative to regulatory permitting, start-up & commissioning and acceptance testing.

Third, the organizational structure of a design-build team for the execution of a water/wastewater project is typically different than in other public sectors. Generally speaking, the design-builder for most transportation and building projects is led by a contractor, with the lead design professional serving as a sub-consultant. In the water/wastewater sector, it is common to find a fully integrated design-build firm in the lead, managing the construction through subcontracting with or without some amount of construction self-performance. It is also common to see the design-builder as a joint venture between a general contractor and either an engineering firm or the construction subsidiary/affiliate of an engineering firm. These joint venture approaches can create some major opportunities in terms of how design-build can best be used in delivering a project.

The three preceding points have resulted in the fourth major difference between how design-build is executed in the water/wastewater sector versus other public sector design-build projects.

Fourth, if they have the procurement authority to do so, many water/wastewater owners bring the design-builder to the project very early in the design process. They do this through a qualifications-driven procurement process that selects the design-builder to work in collaboration with the owner to define the scope and its quality, budget and schedule and to execute the project, all as approved by the owner. This process, which has come to be known as "Progressive Design-Build," provides a stark contrast to "Bridging Design-Build," which has been the norm for other public sector and federal agency design-build projects. Readers should note that while the term "Bridging Design-Build" is a DBIA-recognized term used in other public sectors, it has not been typically used in water/wastewater sector. Instead, the term "Fixed Price Design-Build" has become the commonly used term in this sector and it is used in this publication.

Procurements for Fixed Price Design-Build are based on either a prescriptive approach or a purely performance-based approach. In each case: (a) owners and their design consultants develop detailed documentation that define the project's technical requirements; and (b) proposers provide technical proposals based upon this documentation, and price is often the major factor in deciding upon which proposer will be selected as the design-builder. Under either approach, the owner will make a major time and money commitment because of the need to advance documentation. It should also be noted that potential design-builders carefully evaluate the return on investment of their marketing dollars when evaluating whether to pursue a Fixed Price Design-Build procurement, given that price is a major factor in selection.

The prescriptive approach enables the owner to control the design, as the RFP's documentation will contain a detailed design. This control comes at a cost, as the design-builder's ability to offer innovative and cost-effective design solutions is severely constrained. It may also create the potential for conflicts between the owner and design-builder over who should bear the financial risk of mistakes in the documentation provided

to proposers that are discovered after contract award. A performance-based approach will identify performance requirements in the RFP, with few (if any) prescriptive design elements. Proposers are challenged to propose the best technical solution at the lowest cost (e.g., life-cycle cost or net present value). While performance-based procurements allow design-builders to innovate and develop cost-effective design solutions, the owner may find that the design-builder's design solution does not meet its preference (although the design meets the owner's performance requirements). Performance-based procurements are typically limited to owners who do not seek to have a clear definition of the project when they are starting the procurement, and may best be used when technical solutions require innovative thinking or implementing emerging technology in the final project solution.

Progressive Design-Build works much differently. Its overall objective is to have the design-builder collaborate with the owner and its team of in-house personnel and outside advisors to develop the basis of design. Another distinct characteristic of Progressive Design-Build is to have the overall project price negotiated once the design is developed to a point where the project and scope of work are well-defined. To accomplish this, the owner will procure the design-builder either fully or primarily based on team and individual qualifications. If any price-related factors are considered (e.g., compensation for preliminary design services and/or design-builder fee), they carry a low weighting.

Owners can see specific benefits when they introduce the design-builder to the project early and have it participate with the owner in the design process. This leads, among other things, to optimum life-cycle costing, equipment selection and even the selection of key trade subcontractors. These benefits are generally not available when an owner uses Fixed Price Design-Build. Moreover, the collaborative design development process also has the benefit of enabling design decisions to be made in an open-book cost environment, giving the owner real-time information that can better inform it of design-price tradeoffs. Lastly, this approach enables the owner to decide the optimal point at which to obtain a price proposal from the design-builder. Price proposals are typically obtained at some point between 50% and 90% of the overall design completion and are typically based on a guaranteed maximum price (GMP). A GMP is a cost plus fee arrangement where cost and fee are defined. Some owners at this point choose to convert the GMP into a lump sum (i.e., fixed price).

Fifth and lastly, in the water and wastewater sector it is common to see the term alternative project delivery include construction management at risk (CMAR), Fixed Price Design-Build (FP DB) and Progressive Design-Build (PDB). In the water and wastewater sector these forms of project delivery have become widely used and accepted and as such should not be considered "alternative" any longer. Moving forward the more appropriate term, collaborative project delivery, will be used.

DESIGN-BUILD DONE RIGHT™ IN THE WATER/WASTEWATER SECTOR

In February 2014, DBIA released *Design-Build Done Right: Universally Applicable Design-Build Best Practices*. This publication identified practices that had two basic characteristics: (1) they were written to be universal in applicability, spanning any type of design-build project; and (2) they were important enough to directly affect project performance. Stated differently, implementing the Universal Best Practices on any type of design-build project increases the probability of a successful project that meets the expectations of all stakeholders. If these practices are not implemented, there is an increased probability that the project's performance will be compromised and that some or all of the stakeholders will be disappointed.

Design-Build Done Right: Universally Applicable Design-Build Best Practices was organized into three primary sections:

- i. Procuring Design-Build Services
- ii. Contracting for Design-Build Services
- iii. Executing the Delivery of Design-Build Projects

Each section of that publication contains overarching principles that represent the best practice. Each best practice is then supplemented by several implementing techniques that provide guidance on specific ways to implement the best practice – essentially "mini best practices." The combination of best practices and implementing techniques are the basis for Design-Build Done Right™.

DBIA's *Universally Applicable Design-Build Best Practices* publication recognizes that there are real-world differences among design-build market

sectors (e.g., water/wastewater, transportation, federal projects) and that specific implementation techniques might differ slightly from one market sector to another. This publication uses the *Universal Best Practices* as a baseline. The baseline is modified in two ways: (a) in a few instances by slight modifications to the universal implementation techniques; and (b) new implementing techniques, all of which are intended to address the real-world attributes of the water/wastewater sector – particularly relative to the four issues addressed in the preceding section. These modifications are shown in a blue font to help readers easily see the changes. DBIA also recognizes that some owners and practitioners may want further explanation and guidance to fully appreciate the thought behind the principles in this document. Therefore, it is anticipated that from time-to-time additional publications will be provided to elaborate on these principles.

DBIA intends to continually update its portfolio of publications, tools and other resources so that design-build stakeholders will have access to leading-edge information that will allow them to do design-build “right” in accordance with the concepts expressed in this document.

I. PROCURING DESIGN-BUILD SERVICES

An owner's choices of project delivery system and procurement approach strongly influence project results. These choices are among the first decisions an owner makes on a project and they form the foundation for how the project will be developed, procured and executed, and how the key project stakeholders communicate and relate to each other. In making these choices, it is critical for an owner to consider the particulars and circumstances of each project, including the procurement options available to the owner. After thoroughly considering these issues, an owner should make a strategic decision as to how to take full advantage of the many benefits that are inherent in the design-build process.

DBIA considers the following as three (3) best practices for owners as they make their project delivery and procurement decisions.

1. An owner should conduct a proactive and objective assessment of the unique characteristics of its program/project and its organization before deciding to use design-build.

In furtherance of this practice, the following implementing techniques apply:

- a. Owners should understand the potential benefits, limitations and attributes of design-build and make an informed decision as to whether the use of design-build will benefit their program/project.
- b. Owners should create an organization that supports the successful procurement and execution of a design-build project, with key personnel (including those advising/representing the owner) educated and trained in, among other things: (a) the procurement, contracting and execution of design-build projects; and (b) the importance of setting expectations and fostering a collaborative relationship among all members of the project team.
- c. Owners should identify and involve key project stakeholders at the early stages of project planning, as stakeholder goals, expectations, challenges, constraints and priorities should guide all project planning and procurement activities, including the determination and implementation of design excellence and sustainability goals.
- d. Owners should involve senior leadership that is committed to the success of the design-build process, as this will foster a healthy and trusting relationship among the entire project team.
- e. Owners should carefully research and assess current market conditions as they plan their design-build programs, as this will identify potential risks and opportunities. Among the issues to be researched and assessed include: (a) procurement actions that could limit or expand competition; (b) projected labor, material and equipment availability; (c) lessons learned from similar projects; and (d) realism of budget and schedule estimates.
- f. Owners should use a rigorous and equitably-balanced project risk assessment process early in the procurement process and update/refine the risk assessment as the project proceeds from procurement through project execution.

I. PROCURING DESIGN-BUILD SERVICES (CONT.)

- g. Owners should understand all procurement constraints imposed or flexibilities afforded by their legislative, regulatory or internal requirements.
 - h. Owners should make an early determination of their programmatic position on conflicts-of-interest policy for design-build procurements and promptly disclose this policy to the marketplace that will likely pursue these design-build procurements.
 - i. Owners should make an early determination about their expectations for the design-builder's role in the start-up, commissioning and operations of the project and reflect expectations in their procurement approach.
 - j. Owners should specifically recognize the importance of their procurement, legal and operations and maintenance departments in successfully procuring and executing capital projects and develop processes to educate and seek input from key personnel in those departments, particularly if the departments are unfamiliar with design-build and other collaborative project delivery approaches.**
 - k. Owners should determine, as part of its consideration of delivery system alternatives, who will manage and be responsible for the environmental permitting process, geotechnical investigations and permanent utilities connections.**
2. An owner should implement a procurement plan that enhances collaboration and other benefits of design-build and is in harmony with the reasons that the owner chose the design-build delivery system.

In furtherance of this practice, the following implementing techniques apply:

- a. Owners should use a procurement process that: (a) focuses heavily on the qualifications of the design-builder and its key team members rather than price; and (b) rewards design-build teams that have a demonstrated history of successfully collaborating on design-build projects.
- b. Owners should use a procurement process that encourages the early participation of key trade contractors **and professional services consultants**.
- c. Owners should develop their design-build procurement with the goal of minimizing the use of prescriptive requirements and maximizing the use of performance-based requirements, which will allow the design-build team to meet or exceed the owner's needs through innovation and creativity.
- d. Owners should develop realistic project budgets, and provide clarity in their procurement documents about their budgets, including, as applicable: (a) identifying "hard" contract cost/budget ceilings; (b) stating whether target budgets can be exceeded if proposed solutions enhance overall value; and (c) stating whether the owner expects proposers to develop technical proposals that will encompass the entire target budget.
- e. Owners should consider the level of effort required by proposers to develop responsive proposals, and should limit the deliverables sought from proposers to only those needed to differentiate among proposers during the selection process.
- f. Owners who require project-specific technical submittals (e.g., preliminary designs) for evaluating and selecting the design-builder should: (a) use a two-phase procurement process; and (b) limit the requirement for such submittals to the second phase, where the list of proposers has been reduced.

I. PROCURING DESIGN-BUILD SERVICES (CONT.)

- g. Owners should determine, as part of their procurement plan, their position on: (a) the use of a stipend for unsuccessful proposers; and (b) contract security requirements (i.e. bonds, insurance and corporate guarantees).**
 - h. Owners who intend to have the design-builder perform services that extend beyond completion of normal acceptance testing (e.g., extended start-up and commissioning, training, process optimization, operation and maintenance assistance, etc.) should make a thoughtful decision about the qualifications and experience requirements for the design-builder and whether it is necessary or appropriate to evaluate the proposers' financial statements on a weighted, vs. pass-fail basis, and this should be considered as part of the procurement plan, as it may influence the formation of teams. Owners who seek short- or long-term operations and maintenance should consider the design-build-operate project delivery method.**
 - i. Owners should objectively assess those areas within the owner's organization that will be involved in the design-build project, determine what, if anything, is needed to support the design-build project and promptly implement as-needed modifications to existing processes and staffing levels and expertise.**
 - j. Information requested by the owner during the procurement process should focus on being able to establish key differentiators among the proposers, and should be used in the evaluation process by being linked to specific evaluation criteria.**
 - k. Owners should: (a) provide historical data on quantity and quality of input and, if applicable, the past performance and other existing information about existing facilities; and (b) make a thoughtful decision as to what information the design-builder can rely on in preparing a technical proposal (e.g., water quality analyses), particularly in the case of Progressive Design-Build, where the design-builder will be paid for design-related services it performs after contract award.**
 - l. Owners who are considering using prescriptive technical requirements as part of their procurement process should, as part of their procurement plan, thoughtfully assess the impact of doing so on their overall project goals and the commercial consequences if there are mistakes in those requirements.**
 - m. Owners who have the ability to consider Progressive Design-Build as an option for their projects should, as part of their procurement plans, make an early determination of what level of design should be performed by the owner and its consultants prior to initiating the procurement, as three of the major benefits of this process are: (a) enabling the design-builder to be involved in the early determination of design solutions; (b) maximizing the opportunity for design-builder innovation during the design process; and (c) streamlining the design-build procurement process.**
 - n. Owners who select Progressive Design-Build should, as part of their procurement plan, provide specific training for their operations and maintenance personnel about the characteristics of the process and how such personnel will be involved during the procurement and implementation stages of the process.**
 - o. Owners should determine the requirements of freedom of information and other disclosure laws, and ensure that their procurement is conducted consistently with such laws.**
3. An owner using a competitive design-build procurement that seeks price and technical proposals should: (a) establish clear evaluation and selection processes; (b) ensure that the process is fair, open and transparent; and (c) value both technical concepts and price in the selection process. In furtherance of this practice:

I. PROCURING DESIGN-BUILD SERVICES (CONT.)

- a. Owners should perform appropriate front-end tasks (e.g., geotechnical/environmental investigations and permit acquisitions) to enable the owner to: (a) develop a realistic understanding of the project's scope and budget; and (b) furnish proposers with information that they can reasonably rely upon in establishing their price and other commercial decisions.
- b. Owners should appropriately shortlist the number of proposers invited to submit proposals, as this will, among other things, provide the best opportunity for obtaining high quality competition.
- c. Owners should provide shortlisted proposers with a draft design-build contract at the outset of the second phase of procurement, which: (a) provides proposers with an opportunity to suggest modifications during the proposal process; and (b) enables proposers to base their proposals on the final version of the contract.
- d. Owners should conduct confidential meetings with shortlisted proposers prior to the submission of technical and price proposals, as this encourages the open and candid exchange of concepts, concerns and ideas. **However, because these confidential meetings can be costly and resource-intensive for all parties, limitations on the number of such meetings should be considered.**
- e. Owners should protect the intellectual property of all proposers and should not disclose such information during the proposal process.
- f. Owners should offer a reasonable stipend to unsuccessful shortlisted proposers when the proposal preparation requires a significant level of effort.
- g. Owners should ensure that their technical and cost proposal evaluation team members are: (a) trained on the particulars of the procurement process; (b) unbiased; and (c) undertake their reviews and evaluations in a manner consistent with the philosophy and methodology described in the procurement documents.
- h. Owners should ensure that technical review teams do not have access to financial/price proposals until after completion of the scoring of the technical proposals.
- i. Owners should provide unsuccessful proposers with an opportunity to participate in an informative debriefing session.
- j. Owners who use prescriptive documents for a Fixed Price Design-Build should: (a) determine whether applicable law allows proposers to submit deviations from these prescriptive requirements through the submission of Alternative Technical Concepts (ATCs); (b) establish a clear process for the exchange and consideration of ATCs (e.g., confidential meetings) and how ATCs will be incorporated into the evaluation process; and (c) consider the level of effort and cost required of the proposers in developing ATCs and, consequently, determine which areas of the bridging documents will not be considered for ATCs and communicate those determinations in the procurement documents.**
- k. Owners using a Progressive Design-Build process should: (a) if allowed by applicable law, select the design-builder based on qualifications, experience and other non-price considerations; or, (b) if required by law to consider price, limit price factors to pricing components that are reasonably ascertainable by the proposer, such as compensation for preliminary services and/or design-builder fee and make such price-based considerations a nominal weight in the overall selection process.**
- l. Owners who want to use the procurement process to obtain detailed technical proposals should consider using Fixed Price Design-Build with stipends rather than Progressive Design-Build, as this is not only costly for the proposers, but is not compatible with the goals and philosophy behind Progressive Design-Build.**

I. PROCURING DESIGN-BUILD SERVICES (CONT.)

- m. Owners should carefully consider the extent of technical information required in the submitted proposals and avoid requesting nonessential and unnecessary technical information that is not needed for the evaluation and selection.
- n. Owners should require proposers to clearly state in its proposal any exceptions taken to any procurement requirement, including the prescriptive technical documents, and other technical project requirements.
- o. Owners should, in conformance with applicable law, protect each proposer's intellectual property obtained during the procurement process and specifically have an understanding with the proposers about how this will be maintained as a result of information exchanged during confidential meetings.

II. CONTRACTING FOR DESIGN-BUILD SERVICES

The use of fair and clear contracts is fundamental to any delivery process. Because there are some important differences between design-build contracts and those for other delivery systems, it is particularly important for the individuals who administer the design-build procurement and execution to understand the contract's language and its practical application. DBIA also recognizes that the construction industry currently tends to focus on the contract between the owner and design-builder. For design-build to succeed, however, the principles must also be incorporated into the contracts of those subconsultants, subcontractors and major suppliers working within the design-build team.

DBIA considers the following as three (3) best practices in design-build contracting.

1. Contracts used on design-build projects should be fair, balanced and clear, and should promote the collaborative aspects inherent in the design-build process.

In furtherance of this practice, the following implementing techniques apply:

- a. Contracting parties should proactively and cooperatively identify significant project-specific risks and clearly identify in the contract how such risks will be handled.
- b. Contracts should reasonably allocate risks to the party that is best capable of addressing and mitigating the risk.
- c. Contracts should use language that is understandable to those personnel who are administering the project.
- d. Contracts should encourage, rather than hinder, communications among project stakeholders.
- e. Contracts should contain a fair process that facilitates and expedites the review and resolution of potential changes to the contract and adjustments in the contract price and time.
- f. Contracts should contain a dispute resolution process that promotes the prompt identification and resolution of disputes at the lowest possible level of hierarchy within the parties' organizations.

2. The contract between the owner and design-builder should address the unique aspects of the design-build process, including expected standards of care for design services.

In furtherance of this practice, the following implementing techniques apply:

- a. Owners should, consistent with their overall procurement strategy, evaluate and use appropriate contractual incentives that facilitate the alignment of the performance of their design-build teams with the owner's project goals.

II. CONTRACTING FOR DESIGN-BUILD SERVICES (CONT.)

- b. If the design-builder is expected to meet performance guarantees, the contract should clearly identify such guarantees, and the guarantees should be capable of being measured and reasonably achievable by a design-builder performing its work in a commercially reasonable fashion.
 - c. The contract should clearly specify the owner's role during project execution, particularly relative to: (a) the process for the design-builder reporting to and communicating/meeting with the owner; (b) the owner's role in acting upon design and other required submittals; and (c) the owner's role, if any, in Quality Assurance/Quality Control.
 - d. The contract should clearly define the role of the designer(s)-of-record and how they will communicate with the owner.
 - e. The contract should clearly define commissioning, **acceptance testing, requirements for meeting the contract's performance guarantees (if any)** and project closeout processes, including documentation associated with such processes.
 - f. The contract should clearly define requirements for achieving project milestones, inclusive of substantial completion, final completion and final payment.
 - g. The role of an owner's representative(s) or advisor(s), if engaged by the owner, should be clearly specified in the contract.**
 - h. The contract should clearly define the responsibilities and requirements for project transition to owner operations.**
 - i. If the project involves an existing facility that has to be kept in operation, the contract should clearly define the responsibilities and requirements of the owner and design-builder as it relates to operations, interruptions and shutdowns.**
 - j. The contract should define the respective responsibilities of the parties in the permitting and permanent utilities process, participation with other governmental agencies, and how the risks associated with other governmental agencies (e.g., permit delays) will be handled.**
 - k. Owners should consider the use of an owner's contingency/allowance that will be included as a line item in the lump sum or guaranteed maximum price to address owner-responsibility payment items, such as project scope increases, change orders and scope items not fully defined at the time the price is set.**
 - l. For Progressive Design-Build, the contract should clearly define how the design-builder contingency will be treated, including: (a) the definition of allowable and unallowable contingency costs; (b) the rights of the owner to review and concur with contingency use; and (c) the disposition of any contingency funds at project completion.**
3. The contracts between the design-builder and its team members should address the unique aspects of the design-build process.

In furtherance of this practice, the following implementing techniques apply:

- a. During the proposal phase, the design-builder should use written teaming agreements with each team member to develop and capture an understanding of their relationship and key commercial aspects of their relationship.

II. CONTRACTING FOR DESIGN-BUILD SERVICES (CONT.)

- b. The design-builder and its designer(s) should develop an understanding, at the outset of their relationship, of the key commercial aspects of their relationship, including: (a) the designer's compensation, if any, during the proposal period; (b) the designer's role in reviewing/approving the proposal; (c) the contractual liability of the designer for problems, including delays, during execution; and (d) the designer's right to use project contingency for its execution-related problems, and capture these understandings in the written teaming agreement.
- c. The contract should reflect that designer(s)-of-record are regularly and actively involved throughout the project's execution.
- d. The contract should establish the role and primary responsibilities that each party has relative to the design process.
- e. The contract should ensure that there is a clear understanding as to how the team members will communicate with each other and with the owner, including meetings that each party is expected to attend.
- f. The contract should have a clear and commercially-appropriate "flow-down" of obligations from the prime design-build contract.

III. EXECUTING THE DELIVERY OF DESIGN-BUILD PROJECTS

DBIA recognizes that the best practices associated with the execution of a design-build project are similar to those projects delivered under other systems. It is not the intent of this document to focus on identifying general best practices associated with design, construction or project management. Rather, this document's best practices for project execution focus on unique features of the design-build process, where successful execution is based upon relationships built upon trust, transparency and team integration. Individuals not only need to be competent in their specific areas of responsibility, but they also must understand the design-build process and that success is directly dependent upon the ability of the entire team to work together collaboratively.

DBIA considers the following as four (4) best practices in the execution of a design-build project.

1. All design-build team members should be educated and trained in the design-build process, and be knowledgeable of the differences between design-build and other delivery systems.

In furtherance of this practice, the following implementing techniques apply:

- a. All members of the design-build team must understand that the project's success is dependent on the ability of the team members to work collaboratively and to trust that each member is committed to working in the best interests of the project.
- b. Projects should be staffed with individuals that are educated and experienced in the implementation of design-build best practices and whose personalities are well suited to the collaborative nature of the design-build process.
- c. All project teams should have senior leadership committed to the success of their projects and actively supportive of design-build best practices.
- d. The design-builder should recognize the benefit of including experienced design-build trade contractors on its team.

III. EXECUTING THE DELIVERY OF DESIGN-BUILD PROJECTS (CONT.)

2. The project team should establish logistics and infrastructure to support integrated project delivery.

In furtherance of this practice, the following implementing techniques apply:

- a. Owners and the appropriate members of the design-builder's team should co-locate when justified by project characteristics (e.g., project's complexity and volume of design submittals).
 - b. Design-builders should strive to have their design and construction teams working in the same place as often as possible, including co-location if practical.
 - c. Owners and design-builders should ensure that the administrative processes established for project execution are appropriate, well-understood and expeditious.
3. The project team, at the outset of the project, should establish processes to facilitate timely and effective communication, collaboration and issue resolution.

In furtherance of this practice, the following implementing techniques apply:

- a. The owner and design-builder should develop and use a structured partnering process, scaled appropriately to reflect the project's size and complexity.
- b. The owner and design-builder should create an executive leadership group, including individuals from key members of the design-builder's team (e.g. designer(s)-of-record and key subcontractors) to meet regularly, monitor the project's execution and facilitate the understanding and achievement of the parties' mutual goals.
- c. The owner and design-builder should develop processes that enable key stakeholders (e.g., government agencies and third-party operators) to interface directly with the design-builder and its design professionals on significant elements of the work.
- d. The owner and design-builder should, at the outset of the project, endorse and liberally use techniques that effectively integrate design and construction activities and take steps to continue these processes throughout the duration of the project.
- e. The owner should be fully engaged and prepared to make the timely decisions necessary to facilitate the design-builder's performance, including being represented by staff that has the authority to make decisions and perform its project functions.
- f. The design-builder should clearly, thoroughly and expeditiously advise the owner about any issues that might impact the contract price or schedule, as this will, among other things, enable the owner to make an informed decision as to how to address such issues.
- g. Owners working on Progressive Design-Build projects should provide for experienced estimating and scheduling personnel and allow ample time for the review of cost modeling, price estimates and schedules during the design process and for the review and negotiation of the commercial terms with the design-builder.**
- h. Owners should develop processes that enable project stakeholders the ability to provide input to the design-builder on certain elements of the work that will impact the community (e.g., construction traffic, noise, detours/closures) as well as completed project concerns (e.g., odors, noise, traffic).**

4. The project team should focus on the design management and commissioning/turnover processes and ensure that there is alignment among the team as to how to execute these processes.

In furtherance of this practice, the following implementing techniques apply:

- a. The owner and design-builder should acknowledge the significant level of effort required to manage the development and review of the design and, consequently: (a) dedicate sufficient resources to foster a collaborative environment for this work; and (b) mutually develop a realistic design development plan that efficiently engages the owner and key members of the design-builder's team (e.g., designer(s)-of-record and key subcontractors) in purposeful meetings.
- b. The owner and design-builder should agree upon clear, realistic and expeditious submittal and review/approval processes that are in harmony with the parties' schedule and other project-specific goals.
- c. The design-builder should ensure that design advancement and changes to the contract documents are clearly, thoroughly and contemporaneously documented, and that there is a clear understanding as to when the owner is integrated into the decision-making process for and notified of such advancement and changes.
- d. The design-builder and its team should: (a) establish a trend system early in the design development process to identify, track and evaluate any potential changes before they adversely impact the project's cost or schedule; (b) clearly, thoroughly and contemporaneously communicate to the owner the information derived from the trend system; and (c) maintain the trend system throughout the construction process until it is no longer needed.
- e. The design-builder, in collaboration with the owner, should develop and implement a commissioning and start-up plan to provide for the orderly commissioning and start-up of the project.**
- f. The owner and design-builder should collaboratively develop and implement an acceptance test plan to demonstrate that performance requirements have been met, with such plan having the following characteristics: (a) clear definition of the quantity and quality parameters of the raw and treated water and/or influent wastewater; (b) tests that are measurable and not subjective; (c) test parameters, including testing duration, test parameters and processes, and responsibility matrices for who will be performing the test; (d) clear definition as to what constitutes test passage or failure; and (e) steps to be taken in the event of failure.**
- g. The owner and design-builder should collaboratively develop and implement a project transition plan to provide for the orderly transition of the project to owner operations.**
- h. Owners should consider an extended commissioning and start-up period whereby the design-builder remains on site after passage of acceptance/performance testing and assists the owner with treatment facility optimization, training and other operations & maintenance matters.**

The term "best practices" itself connotes an evolving process of continuous improvement. DBIA views this document to be the first of what will undoubtedly be many iterations of best practices and implementing techniques. As such, DBIA fully expects that the concepts expressed here will be refined and modified over time.

DBIA is the only organization that defines, teaches and promotes best practices in design-build project delivery. Owners choose design-build to achieve best value while meeting cost, schedule and quality goals.



Questions or Comments? Email BestPractices@dbia.org

DESIGN-BUILD DONE RIGHT™ AND CERTIFICATION

Certification provides the only measurable standard by which to judge an individual's understanding of Design-Build Done Right™.

DBIA certification in design-build project delivery educates owners as well as designers and builders on team-centered approaches to design and construction. Owners want successfully executed design-build projects and are looking for a demonstration of both relevant continuing education and experience – both of which can be gained through DBIA certification.

DBIA offers two types of Certification.



Attaining the DBIA requires from two to six years of hands-on experience of pre and post-award design-build. Credential holders who display "DBIA" after their names come from traditional design and construction backgrounds; they are private or public sector architects, engineers and construction professionals. Some attorneys and academic practitioners who specialize in design and construction generally and design-build specifically may also fulfill the DBIA™ requirements.



Unlike the DBIA credential, obtaining the Assoc. DBIA does not require hands-on field experience. Instead, this credential is focused on three key types of individuals who possess a different type of experience: (1) pre-award professionals focusing on critical aspects of the design-build process such as business development and acquisition/procurement; (2) seasoned professionals who are new to design-build project delivery, but not new to the design and construction industry; and (3) emerging professionals such as recent college graduates with relevant educational background in the AEC industry.

For more information, visit www.dbia.org/certification





MISSION:

DBIA promotes the value of design-build project delivery and teaches the effective integration of design and construction services to ensure success for owners and design and construction practitioners.

VISION:

DBIA will be the industry's preeminent resource for leadership, education, objective expertise and best practices for the successful integrated delivery of capital projects.

VALUES:

- Excellence in integrated design-build project delivery, producing high-value outcomes.
- An environment of trust characterized by integrity and honest communication.
- Mutual respect for and appreciation of diverse perspectives and ideas.
- A commitment to innovation and creativity to drive quality, value and sustainability.
- Professionalism, fairness and the highest level of ethical behavior.

DBIA and Water Design-Build Council Strategic Alliance



With the mutual goal of creating a platform for successful capital project delivery in the water and wastewater sector, DBIA and the Water Design-Build Council (WDBC) have formed a strategic alliance. Through closely aligned and collaborative efforts, DBIA and WDBC leaders are committed to providing timely and relevant resources to meet the needs of water and wastewater sector owners and practitioners. Both organizations understand the challenges and importance of providing essential resources to support the economic and societal needs of our nation's water infrastructure. Combining the strengths of each will leverage both DBIA's and WDBC's achievements to date and further both organization's ongoing commitment to develop, promote, and implement best practices specifically tailored for water/wastewater sector collaborative project delivery.

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