DBIA
ROCKY MOUNTAIN REGION

PRESENTS

The Listening Tour

Collaborating Authors

Amanda Faith
Associate, Business Development, MEP Engineering

Ben Wilking, AIA, DBIA
Architect, Farnsworth Group

David Mecham, AIA, DBIA, LEED GA
Associate Principal Fentress Architects

Dennis Ashley, RA, LEED AP
DBIA, DBIA Rocky Mountain Regional Executive Director

Eric Moe, P.E., DBIA
Vice President, Project Development, Puma Steel

Jim Dent, LEED AP BD + C
Preconstruction VP, Weifield Group Contracting

Keegan Snow, AIA, NCARB, DBIA
Design Phase Manager, Mortenson

Ted Laszlo, DBIA, LEED AP, CHC
Vice President, Vertix Builders

Virginia McAllister, RA, NCIDQ, NCARB, LEED AP
Principal, Ironhorse Architects

William Green, P.E., DBIA, LEED AP BD+C
President, The RMH Group, Inc.

Table of Contents

Executive Summary

"30 Interviews with Architects, Engineers, Contractors, and Subcontractors."

In the three years following the publication of Design-Build Done Right®, the DBIA Rocky Mountain Region (DBIA-RMR) Board of Directors has been hearing comments from practitioners that overall Design-Build delivery in the Rocky Mountain Region was not improving and may even be regressing. It was under this premise that the Listening Tour was conceived.

The Listening Tour sought to understand what is and what isn't working in Design-Build delivery in the Rocky Mountain Region through 30 interviews with Architects, Engineers, Contractors, and Subcontractors. As the Listening Tour Committee gathered data and began organizing responses, it became clear that many of the positive experiences and challenges projects were experiencing in the region had already been addressed in some manner by the DBIA Best Practices "Design-Build Done Right®" document. This was an encouraging development, noting that much of the training and education the DBIA-RMR had been providing for the past three years was focused in the right place.

The feedback we heard can be summarized into overarching themes including; training, integration, selection and communication as keys to success in Design-Build projects.

Training

Both the value and need for training for key individuals and participants working on Design-Build projects was a repeated theme heard on the tour. This was consistent even when DBIA member firms and businesses that are well-educated and experienced in the delivery method were involved in projects. Put another way, it seems the growth of the Design-Build delivery method has outpaced the industry's ability to provide consistent education and training throughout both the industry at large and our individual organizations.

Integration

Integration is a key component to a successful design-build from cradle to grave of each and every project. We heard several instances of Contractors and sub-contractors not being present or included enough in the early phases of projects causing confusion and extraneous work. Conversely, the design team and design managers were not included enough through the construction phase to provide consistency.

Selection

We heard multiple times about challenges generated from the selection and assembly of the TEAM. There continues to be opinionated input surrounding the use of, and challenges that come with, hybrid Design-Build and bridged Design-Build delivery models. Difficulties were also expressed by the tour respondents when key subcontractors are awarded based on bidding and not brought on in a Design-Build fashion.

Communication

We heard from numerous individuals that communication was key to success for the projects that exceeded expectations. The communication infrastructure that the TEAM set up at the beginning of a project (ie. contracts and work plans) will affect the outcome. Communicating goals, risks, challenges, strategies, and processes amongst the TEAM was paramount to a successful project.

"By recalling what did not work, we can focus on better future outcomes."

As you read on, remember that the intent of this document is to help us all improve and do better. By recalling what did not work, we can focus on better future outcomes. This document assembles a tremendous amount of lessons learned from the industry in Design-Build. For clarity, the findings of the Listening Tour do not conclude that Design-Build is not working but that lessons learned are present in any delivery method.

We the Board Members of the Rocky Mountain Region and Listening Tour Committee sincerely thank all the Listening Tour Participants. We ourselves learned new things as part of this process. It is our hope that this information will help all of us (Design-Builders) be better!

Training

DO: Educate Yourself and Your Staff in the Design-Build Process
DO: Have Experienced Team Members Mentor Inexperienced Staff and Encourage Reverse Mentoring.
DO: Value Continuous Learning
DON'T: Expect Design-Build to Cost Less

Integration

DO: Create an Engaged Design-Build Team
DO: Understand Bridging Documents and How They Add to the Owner's Risk
DON'T: Skip Initial Teaming or Partnering
DO: Perform a Risk Analysis
DO: Have the Design and Build Entities Form a Truly Integrated TEAM to Take the Project from Cradle to Grave
DO: Ensure the Design-Build Leader Facilitates Successful Design Phase Management
DO: Require the Contractor and Subcontractor's Entire Teams to be Involved During Design, Including the Appropriate Field Personnel
DO: Continue to Integrate the TEAM Through Construction

Selection

DO: Encourage and Reward Experience of the Design-Build Process
DO: Allow the Design-Builder to Award to All Key Team Members Early in the Design Process.*
DON'T: Force Design-Build Teams Together
DO: Encourage Participation from the Industry and Respect the Effort
DON'T: Use Standard Subcontract Agreements with Designers
DON'T: Hard Bid Documents in Design-Build

Communication

DO: Identify How the Designers Will Be Compensated for Value Engineering, Design Changes, and Substitutions
DO: Have Owner O&M Personnel Review Contract and Requirements
DO: Establish a Timeline for Allowable Changes
DO: Have a Strong Design-Build Leader Directing the Design-Build Team with Clearly Identified Roles and Responsibilities
DON'T: Change the Design-Build TEAM Leadership Unless There is a Problem with the Team Member(s)
DO: Develop A Process for Making Design Decisions
DO: Communicate Documentation Requirements Early
DO: Ensure All TEAM Entities are on the Same Page about Project Goals: Design Excellence, Budget, and Schedule
DO: Interact in Real Time with the Design Partners to Continuously Incorporate Pricing Impacts
DON'T: Price and Manage the Budget in a Vacuum
DO: Evaluate the Use of Technology and How the TEAM Will Collaborate in Using Technology
DO: Analyze Thoroughly the Size and Complexity of the Project to identify if Co-location will be Beneficial

Know the DBIA Best Practices

Our authors refer to "Design-Build Best Practices" throughout this whitepaper. For more information, check out the **Design-Build Done Right®** document at the link below: https://dbia.org/wp-content/uploads/2018/05/Best-Practices-Universally-Applicable.pdf

With the release of the DBIA Best Practices "Design-Build Done Right®" in 2014, the Design-Build Institute of America (DBIA) brought to light the combined experience of thousands of Design-Build projects to help the community understand what does and does not work in Design-Build. These best practices were divided in to three major sections: Procurement, Contracting, and Execution. Design-Build Done Right® provides universal practices that can be applied to any Design-Build project regardless of market sector, size, complexity or contract type (including progressive Design-Build and traditional Design-Build).

The DBIA-RMR embarked on the Listening Tour. The Listening Tour encompasses focus-group style interviews of 40 firms including Architects, Engineers, Contractors, and Subcontractors to understand what is and what isn't working in Design-Build delivery in the Rocky Mountain Region.

The committee sorted and organized the data into the three primary sections of Design-Build Done Right®: Procurement, Contraction and Execution. The results of the Listening Tour can accompany and expand on the DBIA Best Practices. For reference, the DBIA Best Practices can be found as an appendix to this document.

Methodology

Each company was interviewed separately and included key personnel ranging from firm principals to superintendents in the field, all with Design-Build experience in the Rocky Mountain Region. The interviews were conducted by teams of non-competing interviewers to ensure open and honest feedback. Although the interviewing teams used a standard questionnaire and format, the interviewees quickly engaged in a dialogue regarding both their enthusiasm and reservations about the Design-Build delivery as currently practiced. All references to actual companies and projects have been omitted, but the information provided remains as conveyed to the committee and kept as specific as possible.

The Listening Tour Committee organized common comments and themes into specific recommendations, articulated as Dos and Don'ts in the document. Each Do and Don't recommendation has a brief explanation provided by the Listening Tour Committee to add clarity, as well as comments and real-life examples heard directly from the Listening Tour Interviews.

A few comments are highlighted under multiple Dos and Don'ts. While we aimed to find unique and specific comments, some redundancy remains. For example, team members should be educated in Design Build Best Practices. This applies to every section of Design-Build Done Right® from Procurement through to Execution in the field and every team member from Owner down to the specialty subcontractor's project manager.

A Quick Key

Comments have been separated into designer and builder. Each specific comment is denoted with the following letter designation.

Architect (A)
Engineer (E)
General Contractor (GC)
Sub-Contractor (SC)

(TEAM)

TEAM is utilized throughout the document when referring to the whole team required to deliver a project, including but not limited to: Owner, Architect, Engineers, Subconsultants, General Contractor, and Subcontractors.

Section I: Procurement

Introduction

This section is focused on the procurement of Design-Build services, from genesis of the project by the Owner to solicitation and award of a Design-Builder. This section outlines how an Owner can set-up a project for success with Design-Build. After all, the difference between success and failure in Design-Build can often be traced to the Procurement Process. The Procurement Process is led by the Owner, therefore, the Dos and Don'ts in this section are primarily for Owners. For the practitioner, do not skip this section. Many of the Owners in the Rocky Mountain Region lean on the industry for procurement best practices. Therefore, it is important to understand how an Owner can set themselves up for success with Design-Build.

DO:

Educate yourself and your staff in the Design-Build process

Design-Build is a unique delivery method that requires a different approach than the traditional 2-contract system. This difference requires education and experience to execute correctly with training required for all parties. As projects continue to move quicker, the education and training is being replaced with on the job training, resulting in more mistakes and conflict which can quickly derail the delivery method.

From Designers

- Without a full commitment to the Design-Build process, Owners end up dabbling in the process and find that they cannot keep up with the design and construction teams. (E)
- A lot of decisions get made as the deal gets done between the General Contractor and the Owner. Had the Architect been a part of those conversations, the project would have taken off on a better foot. (A)
- We did Design-Build better long ago (a dozen years ago), but now that the delivery method has grown as much as it has, many without a background in Design-Build. We need good examples of Design-Build best practices. (A)
- Public owners from smaller communities with less onerous requirements and regulations tend to be more successful with Design-Build. (A)
- When the owner for a Design-Build project gives the project lots of attention early, things tend to go well. (E)
- The trend lately in the private sector is to start the project conventionally through Design Development and then switch to Design-Build to shed design liability to General Contractor. This is too late in process to benefit from Design-Build and should be called something else. It's a nightmare for the general contractor with very little ability to impact design. (E)
- When less thought about who the team is early creates tension later in the project. (E)

- There are currently no projects that our design firm can think of that are "done right" per DBIA best practices. The market has deteriorated within the last five years. (A)
- The owner's role is very important on Design-Build projects and they should be educated about Design-Build best practices. (E)
- The biggest impact on a project happens early. When the big decisions are made later, the ability to respond and make changes is more difficult. (E)
- Education will help Owners understand that Design-Build is not meant for complete shedding of risk. (A)
- Owners need to understand how a Design-Build project is put together and objectively decide if they are ready for that commitment. If not, the Owner should engage a trained Owner's Representative to help them be successful with the delivery. (A)
- Owner education is key to transforming the mindset from low bid to best value. They have to trust the whole process and understand that it can only work if it is implemented in whole. (A)
- The Owner's RFP evaluation team must be educated in Design-Build Best Practices in order to understand how to evaluate proposals for best value. (A)
- Owner should be comfortable with Design-Build; otherwise use a different delivery. (E)

"Owners need to understand how a Design-Build project is put together and objectively decide if they are ready for that commitment."

From Builders

- Design-Build has the potential to increase the quality and satisfaction delivered for any given project, but achieving this potential starts with the Owner understanding the Design-Build process. (GC)
- Owners need to understand the difference between low cost and best value. Owners need to be ready to make value-based decisions in lieu of cost driven decisions. (GC)
- Without education in Design-Build delivery, the Owner can lead a project to failure instead of success.
- Owners should thoughtfully evaluate the processes and procedures in their organization to determine if they are culturally ready for a Design-Build delivery. (GC)
- The Owner is often a big hurdle, especially when they make a decision about which delivery method to use without understanding the pros and cons. (GC)

DO:

Encourage and reward experience of the Design-Build process

Training and knowledge is not a substitute for experience of the Design-Build process. Accordingly, the individuals who make up the Design-Build Team should be rewarded for this experience in a project award. Emphasis should be placed on the actual individual team member experience as opposed to the experience of the firm(s). DBIA credentials are an example of demonstrated understanding and experience of the Design-Build process owners should consider.

From Designers

- More and more solicitations are simply bids, and often the naïve team gets the job. Architects are treated more like a subcontractor. (A)
- Qualifications-based selection is not really qualifications-based when 70% of the decision is based on dollars. (E)
- Choosing a project given the delivery method is not as important as the team identified for the project. (E)
- Some of the best experiences were when the owner stipulated the general contractor's conditions and fee as part of the procurement. This took profit out of the equation when making decision about the scope of the project. (A)
- A low fee almost guarantees you will not get the best solution. For example, a structural engineer often can design a more efficient structure with a higher fee, lowering the overall project costs. (A)
- DBIA credentials and past performance questionnaires help qualify members of the team. (E)
- Lack of qualifications-based selection is on the rise. Owners should be choosing the team on their experience and cost to complete the work based on DBIA Best Practices. (A)
- Past Project Performance Questionnaires are good tools for owners to understand the performance and experience of their potential teams. (A)

From Builders

"Owners and even Design-Builders are often selecting teams based on 15% of the work...You should hire based on the people's ability to manage the other 85%."

- Overall experience with Design-Build was much better ten years ago than it is today. With Design-Build delivery growing as much as it has, many more contractors without a background in Design-Build are compromising the process. (SC)
- Design-Build Experience is huge!! Contractors, Subs and Designers (GC)
- Owners and even Design-Builders are often selecting teams based on 15% of the work (overhead and profit). You should hire based on the people's ability to manage the other 85%. (SC)
- Judges for RFP don't know what they are reading to understand scope letters. Tools can connect the owner more quickly to scope and budget understanding. (SC)
- Select individual team members on Qualifications first and people who get the Design-Build behavior second. (GC)

DON'T: Expect Design-Build to cost less

There is a perception that Design-Build is less expensive than traditional methods. While it is possible to gain efficiency and lower the cost of a project overall, Design-Build alone does not create a lower project cost. The cost savings can come from innovative solutions, speed of decision making, and overlap of design and construction phases. The real savings in Design-Build is schedule reduction allowing the Owner to start recouping their investment costs sooner.

From Designers

- We thought that documentation and construction administration would be lighter, but it did not turn out that way. Fee structure does not support the amount of work. (A)
- Owners are now writing RFP's that limit the amount of time the architect can spend on the project during construction. This greatly increases the risk of the project not being built to design intent and limiting the architect's ability to catch problems early. Architect wants Construction Administration, one visit per week, but since RFP states only once every two-three months including anything more than that would cause that architect's fee to be too high. Thus, the Design-Builder might award the architectural design contract to a firm with less fee, but also less value during construction. (A)
- Allow flexibility in the Design-Build TEAM's approach to getting the project done. One example is how the owner requires the buy-out the work (number of packages). Some packages may include stairs, windows, miscellaneous metals. Difficult to manage when fee was based on traditional packages (four or so) versus the 30 or so non-traditional packages. Design-Build is now just a bid of a bunch of design packages. Bid package approach is fine if it is discussed early and the approach for schedule is agreed on and the increased fee for design is included. (A)
- Owners who choose Design-Build teams based on fee is not a DBIA best practice. A good design that may take longer time often is a better investment for the Owner. (A)

"Owners who choose Design-Build teams based on fee is not a DBIA best practice. A good design that may take longer time often is a better investment for the Owner."

From Builders

- Team members may tend to treat best value as lowest cost. The team must establish evaluation criteria for best value and hold themselves accountable for selecting on value instead of cost. (SC)
- Not every job is meant for Design-Build. Risk-driven and schedule-driven projects are typically good candidates. (GC)
- Hard bidding of Design-Build does not work. Mishandling and lack of information tend to benefit the award of the project to the most ignorant proposer, only to lead to change orders and TEAM problems later.
- Low costs from subcontractors up front may get them the job, but with the scope vs. budget conversations soon changes all this. Subcontractors then fight for more costs. (GC)
- The owner's policy (low bid award of subcontracts) often interferes with the Design-Build process. (SC)
- Setting a reliable budget early is key to helping the owner trust you through the process. (GC)
- Fees must allow team to take care of things – can cover extra items. (GC)
- Design-Build projects require a higher fee to manage the design and construction. (GC

DO: Create an engaged Design-Build team

It is important to assure engagement within the Design-Build team during procurement and throughout the entire project. While procurement will set the tone for engagement, once selected, the TEAM needs to develop an organized communication structure to provide feedback and timely decisions and commit the appropriate resources to ensure deliverables are met. The Owner sets the tone for how the TEAM engages.

From Designers

- Public owners from smaller communities with less onerous requirements and regulations tend to be more successful with Design-Build. (A)
- The owner needs to be able to keep up with the pace of decision making in the design phase. (E)
- The owner should discuss and formalize what project value means ahead of starting their work. Decide what matters most, i.e.: aesthetics, energy use, durability, improved use, etc. (A)
- Design-Build, or the Design-Builder, is sold as a team, but it isn't always. They contain individual companies with individual motives. It is important to align these motives to create a successful project. (A)
- The project team has to have a strong connection to the end users and the Owner. (A)

From Builders

- A common success factor is the owner's participation and involvement in design. (GC)
- When a program is not set and the TEAM's structure is too loose to make decisions, it can take months to settle on scope. The TEAM should understand and document what the planning process will look like, how decisions will be made, and when the planning process should end. (GC)
- Owners should ask themselves; are you OK if everyone wins? Some come into it with the attitude that they are not winning if the Design-Builder is making money. (SC)

DO:

Allow the Design-Builder to award to all key team members early in the design process

In most cases, the Design-Build award is given to the General Contractor, often stipulating that only the Architect is defined. This award in many cases neglects the team members who will directly perform the work on the project (ie subconsultants and subcontractors). Early involvement of subconsultants and specialty subcontractors will provide more accurate information for the General Contractor and Architect, leading to better and more reliable solutions.

From Designers

- Early design decisions are based on incomplete cost and constructability information if the subcontractors are not involved and do not have a stake in the outcome. (E)
- Best Owners are ones that trust the team and only interject as necessary (E).
- Early engagement and feedback from key trades on projects should be one of the most important things for the Contractor. (E)
- All subconsultants should be brought on early to assure the best value from the collective team. Their work may start much later but it is essential that they be part of the teaming process and kick off. (A)
- The General Contractor is less interested in working well as a team, and more interested in profit and schedule. (E)
- When selecting subcontractors, partners need to be vested in the project. Their schedule or backlog can influence interest in the project. (E)
- Teams that work well together develop more trust among the team, creating less stress and better relationships. (A)
- Just at the architect and the contractor must partner so too the subconsultants and subcontractors need to be brought in early in the design process to provide best value to the whole team. (A)
- Architects can contribute to a lower cost or a shorter schedule but are not rewarded for it. (A)
- Contractor can get focused on their own risk and risk mitigation, turning the project closer to a design-bid build process than Design-Build. (A)

"Teams that work well together develop more trust among the team, creating less stress and better relationships."

From Builders

- Public process can be difficult because subcontractors can't be brought on early; low-bid subcontractors must be used. (GC)
- Design and Contractor should be joined at the hip taking the project through the entire project. (C)
- Design-Build is thrown around when not appropriate and depends on who has the responsibility. Subcontractor is called a Design-Build partner but has no control over the engineer under contract with the General Contractor. (SC)

*DBIA RMR recognizes currently, in some states and municipalities, awarding key team members early is not legally allowed due to procurement laws and legislations. When making the decision to pursue the Design-Build delivery method, please pay attention to how your local laws will impact the structure of your Design-Build TEAM.

DON'T: Force Design-Build teams together

Allow teams to form organically based on the strengths and weaknesses of the individuals and companies involved as they apply to a specific project. Not all people and not all companies work well together. When an Owner picks a separate Architect and General Contractor and "marries" them together, it ignores the value of an integrated team.

From Designers

- Shotgun marriages have happened more frequently in the last five years or so, which goes against the whole idea of Design-Build. Separate solicitations by the owner identify the separate players, and the owner then forces the two to work together. This often results in teams not familiar with each other and lengthens the amount of time needed to complete the project. (A)
- The lack of trust is on the rise, which goes against the ability to partner and collaborate on projects. (A)

From Builders

- Owners and General Contractors are using Design-Build for shift risk and implement forced marriages; forced marriages restrict access to the building's users. (SC)

DO: Encourage participation from the industry and respect the effort

If the submittal products from the Procurement Process benefit your project, consider stipends as compensation. There is a cost to every company that responds to a Request for Qualification or Request for Proposal. The more work product that is requested, the higher the cost incurred by each respondent(s). Owners see the highest quality and most engaged response from the market if this fact is acknowledged and requests are kept efficient. Where work product is requested (such as design documents and pre-construction), the Owner should expect to pay for this product.

From Designers

- Two step procurement has always been common, but lately the picture has changed. Qualifications-based selection used to be more popular, now often a schematic design package is required as part of the submittal. When stipends are offered, they are minimal (only covers 25% of architect's costs, and don't include other members of the team including subconsultants and subcontractors). To add to this, unless preliminary information is accepted as responsive, the stipend may not be available. This has dramatically increased the costs for design teams to participate in the process. Many responsible firms are passing on Design-Build as a result. (A)
- Stipends are never enough, and the architect usually keeps the stipend. (E)
- Procurement process that is lengthy is so hard on the design firms. (A)

DO:

Understand bridging documents and how they add to the owner's risk

Owners and practitioners need to understand that Design-Build shifts the risk of performance away from the Owner and on to the Design-Build team. However, bridging documents creates a grey area of liability for the performance of the design. The more bridging information provided, the more risk and liability the owner retains for the bridged solutions' performance.

From Designers

- Solicitations can be heavily bridged, which is a concern. Bridging documents, owner design standards, voluminous RFP documents, and the Floor Area Ratios are sometimes in conflict which come with changes that are the Design-Builder's responsibility. (A)
- Often conflicts in the bridging documents aren't found until the project is being constructed, at which point the conflicts are difficult and expensive to fix. (A)
- If several criteria documents are provided and they conflict with one another, the Design-Build TEAM may have not identified the one intended by the owner to be used in their evaluation and resulting design. These items must be flushed out as soon as possible post-award so as not to delay the work. (A)
- A large, well known architect provided bridging documents on a current job, and the documents are terrible. They contain many conflicts that will become the responsibility of the Design-Build TEAM down the road. (A)
- The bridging architect's documents are not always reliable, and the bridging architect takes no liability for the preliminary drawings. (A)

From Builders

- Bridge Documents lead to waste. The Design-Build team bases decisions on misleading and incomplete information; Design-Build team loses synergy and forced to work with a design the TEAM doesn't understand.

Section II: Contracting for Design-Build Services

Introduction

This section is focused on contracting for Design-Build services, both from the Owner to the Design-Builder and from the Design-Builder to architect, subconsultants, and subcontractors. Design-Build contracts create unique risks in contracting execution not found in traditional design and construction contracting, and it is important for all team members to recognize and address these risks. Further, anomalous Design-Build contracts allow for a more robust partnering effort between team members, who productively implement Design-Build best practices, and the individual companies who benefit from a successful outcome.

DO: Perform a risk analysis

An honest risk analysis should be completed with the TEAM to carefully review potential risks for a given project and contract. The analysis should determine the risks to each team member and how these risks will be addressed and assigned to the appropriate party. Assigning potential risk clearly up front can help avoid and/or mitigate conflicts during the project and allow the TEAM to be proactive as challenges are encountered. Designer's Professional Liability and design contingency are tools to manage risk but should not be relied on to exclusively manage risk.

From Designers

- Contractors can get focused on their own risk and risk mitigation, turning the project closer to a design-bid-build process than Design-Build. (A)
- In Design-Build, the architect does not have a contractual relationship with the owner, so the general contractor can blame the architect just like they could a subcontractor. (A)
- Buying out design services like a subcontractor brings additional liability for the architect. Example, there was a $1M budget for gypsum board and when the budget ended up $100,000 over, the architect "became" liable when this risk was out of our control. (A)
- Litigation is becoming more common among the design team. There is more liability exposure on Design-Build projects than traditional projects. Just looking at a claim and defending it can cost several hundred thousand dollars, even before arbitration. (A)
- Design-Build done properly includes vertical integration of the key trades. Projects where the general contractor and architect are teamed but their subcontractors are procured through a hard bid process is Design-Build in name only. (E)
- Some contracts don't define expectations like a traditional AIA contract would. This creates uncertainty in the standard of care and how to approach different document requirements. (A)

"Educate the team on the difference between design errors and performance issues."

- Educate the team on the difference between design errors and performance issues (A)
- Contractors will cut contingency to win a job. Then, if they lose money on the project, they'll come after the designer's insurance policy, using that as contingency and claiming design errors. (E)
- Professional Liability Insurance will not cover some of the decisions the Architect/Engineer is asked to save money. Example: Contractor demanded waterproofing options that went against the geo-tech report. We cannot do that! (A)
- Contractors think Professional Liability is like General Liability. (E)

From Builders

- Owners and general contractors are using Design-Build for Risk Shift. (SC)
- Contractor is our client. Client wants to shift/reduce risk. This impacts how the design is approached. We want to assume that general contractor knows how to build but we end up documenting more in design for risk purposes. It is important not to put risk entirely on one side of a contract. (SC)
- The team should realistically review the risks on the project, assign the appropriate company to address the risks, and assign the risk appropriate level of contingency if applicable. (GC)
- Objectively review risk associated with using and re-designing bridging documents. Address with the Owner the feasibility of their bridging solution and how, if the solution needs significant re-design, the team will be compensated for revisiting the bridging solution. (GC)
- Certain risks cannot be insured or require special insurances. Speak with appropriate consultants to ensure coverage. (GC)
- Contracts that are modified from a design-bid-build format contain many provisions that counteract the Design-Build delivery. Utilize contracts that are written specifically for Design-Build. i.e. DESIGN-BUILD DBIA contracts. (GC)

DON'T: Skip initial teaming or partnering

It is important to recognize that the Design-Build joins companies together with different cultures and expectations. To allow companies to come together, a teaming agreement is strongly recommended along with partnering sessions to jointly develop the teaming agreement. The agreement should identify areas of responsibility for each company, how conflicts will be resolved, and the resources and timelines each company will commit to the project.

From Designers

- Engineers have a first obligation to the architect, and don't always have a say when working with the contractor and its subcontractors. (E)
- Teams should establish a Memorandum of Agreement (or Understanding) prior to initiating the RFQ/P phase of a Design-Build Procurement. It should clearly delineate all party's responsibility from initial teaming to award. (A)
- Good contractual agreements make for a good project. (A)
- Having a good building partner (GC) at the table is always appreciated and makes the A/E look good. (A)
- The Design-Build TEAM is sold as a team, but it really isn't. They are individual companies with their own motives. (A).
- Set expectations of team members in writing up front. Establish procedures within the TEAM to assure full integration and timely of all new members (A)
- Design consultants are most often signed with the Design-Builder or subcontractors, not the architect. Yet the architect is required to be responsible for overall coordination and has no ability to direct the consultants to provide design when required to maintain schedule. Architect is therefore held responsible when they do not have the ability to really manage the design team. (A)
- Subs on board at SD, major subs PRIOR to SD so that design is kicked off in the right direction. (A)
- A dynamic tension between the designer and contractor can be healthy if it's approached well. (A)
- Identifying value in the client's eyes is important. (A)
- Linking the right partners together helps the team reduce rework. (E)
- When teams discuss what to expect early, the project chemistry and alignment goals is more successful. (A)
- Honest partnership and mutual trust not there. (A)
- Aligning goals among GC and Architect. (A)
- Misaligned expectations between Owner and Design-Build Team, client ends up unhappy. (A)
- Improving Design-Build starts with the attitude of all parties. (A)
- More trust among the team means less

From Builders

- Define communication pathway and organizational structure for communication using an organizational chart and contact information. (GC)
- Define in writing what is and is not proper communication (i.e.: designer talking directly to subs). (GC)
- When the sub-consultant is under contract to the subcontractor, decisions are made more quickly, eliminating the back and forth communications. (SC)
- The steel fabricator needs to be on board and be at the table early. (SC)

- On large projects, there are lots of framing details and the framer is needed to help coordinate. Can't rely on the architect to communicate what is needed on the drawings. (SC)
- The team must understand the building design and how the design affects the systems. For example, open ceilings will need quieter mechanical systems.(SC)
- We see a lot of general contractors waiting until 100% CD's to award major subs. That is not Design-Build, that is shedding risk. (SC)
- Address incentives (including post-award bonuses) and distribution of incentives to the entire team in contracts. (GC)
- Planning, not execution, is the area we fall down. (GC)
- Shift in how contractor sets up team structure and influences behavior downstream will help owner realize benefits of Design-Build and get away from developer driven mindset (GC)
- We have seen Design-Build work best when the team is together from the beginning, enhancing collaboration and trust. (SC)
- When a team has trust and issues arise, one can throw issues out on the table and come to a resolution. (SC)
- We see the most difficulty when everyone on the team is not bought-in. This creates a lack of trust. (SC)
- The more communication you have the more you feel like a team. (GC)
- Personalities associated with the specific positions need to be carefully selected, i.e. no ego, collaborative (GC)

"We have seen Design-Build work best when the team is together from the beginning, enhancing collaboration and trust."

DO:

Identify how the designers will be compensated for value engineering, design changes, and substitutions

The Design-Builder must work together to provide a project solution that fits the project budget. As with any design, the solution is iterative and will take multiple versions of design and pricing to achieve. The TEAM should agree on how this process will be administered and what happens if, following the completion of a project solution, design changes are required. It is important to recognize the added costs to designers for solutions that may result in lower overall project costs.

From Designers

"The team must work together to achieve good results and not fall into a value-engineered solution that does not serve the owner's needs."

- The design team is in a continual value engineering process. (A)
- Need to work as a team to ensure design fee is included in all changes presented to owner. (A)
- Contractor may get paid for a change order but designer/EOR does not get paid for redesign. (E)
- The Design-Builder is asking the designer to fix problems found during construction and not providing contingency to cover the problems. (A)
- For the designer, Design-Build is not cheaper to produce because more time is taken in value engineering and cost options to save construction cost. (E)
- The team must work together to achieve good results and not fall into a value-engineered solution that does not serve the owner's needs. (A)
- Designers do not have the same skin in the game to help solve financial difficulty in Design-Build! (E)
- Designers should participate in subcontractor evaluation to confirm compliance with the design. (E)
- If cost-reducing solutions are agreed upon by the team, the cost of redesign should be included in the value saved due to design change. (E)
- Do you get a different fee for Design-Build? No! They expect that the fee will be lower because you "don't have to detail everything". This is not correct. (A)
- The general contractor needs to vet the substitutions and do their due diligence. (A)
- Getting the right information early - changes in Construction Document phase is too late. (A)
- Contractors do not carry a design contingency after GMP. (E)
- General Contractor needs to adhere to commitments and/or agreements, substitute once during Value Engineer process not twice or more. (A)
- After construction documents are complete, subcontractors will introduce a less expensive piece of equipment and expect us to completely review the submittal for free. This is not Design-Build and has happened on more than 30% of projects. (E)
- Need clear separation from early design options and value engineering (E).
- Value Engineering is not just deleting scope, it usually means redesign. (A)
- Owner doesn't use their contingency on change orders at end of a project, but they think GMP is more expensive upfront. (A)
- Design team should not be in a continual value engineering process throughout construction. The general contractor needs to commit to the decisions made during design. (A)

From Builders

- There is an expectation that the fee is the fee, expect change orders from contractors. (SC)
- Don't cut the architectural fee to win the project It is not less expensive for architects and engineers to do Design-Build. This still does not reduce the required architectural fee. (GC)
- Give engineers decent fees to actually document the process. (SC)
- Design-Build projects take longer to design than design-bid-build work in this current market place. Fees are less, but the effort is more. (GC)

DO: Have owner O&M personnel review contract requirements

Without the early engagement of all the necessary Owner's team can delay or add cost a project if the right people are not involved early in the process providing recommendations and requirements for the contract and facility. Owner standards, prescriptive design elements, and energy use requirements are all examples of items that can be accommodated early in the design process but will cause significant cost and schedule delay if not addressed until after the design solution is settled.

From Designers

- Public owners from smaller communities with less onerous requirements and regulations tend to be more successful with Design-Build. (A)
- Delayed stakeholder engagement in both proposal and early design will completely derail a project. (A)
- The biggest impact on a project happens early. When the big decisions are made later, the ability to respond and make changes is more difficult. (E)
- The Owner needs to take an active role on the project from the beginning, and when this is not the case, the rest of the team is forced to react to solve issues. (E)

From Builders

- Clearly identify prescriptive requirements. (GC)
- Care must be taken to provide the owner a solution they can afford, not what they want. (SC)
- A lot of time and effort is put into addressing Owner requirements and user group input, only to have complete systems (MEP) ruled out late in design from the O&M staff (GC)

DO: Establish a timeline for allowable changes

The Team should establish the allowable timeline for changes to the program during contracting, so that the Design-Builder can complete and execute the project solution. This may be a phased timeline that accounts for the impact of changes (energy use requirements vs. paint colors for example). If the timeline for changes has passed, the Owner should be willing to accept the schedule and cost delays required to address the change.

From Designers

- Designers should carry a design decision matrix that includes cost, quality and schedule impact and is signed off by the owner that parallels the contractor trend log to keep changes, cost and schedule in check. (A)

From Builders

- If it becomes apparent that there are going to be major changes to the design, put pencils down until the decisions are made. (SC)
- In Design-Build done right, everything drawn was decided on beforehand. (SC)
- Contractor trend log should parallel design process and be regularly vetted against overall project parameters. (GC)

DON'T: Use standard subcontract agreements with designers

For efficiency, a Design-Builder may attempt to use their standard agreements for Design-Build contracts. These agreements frequently conflict with the intent of the Design-Build contract and even the intent of the Design-Builder. Further, these standard agreements may create uninsurable risks for Designers as well as discourage collaborative behavior.

From Designers

- Contractors will often use a sub-contractor agreement for a subconsultant thus incorrectly applying risk where it cannot be managed. (A)
- Beware of large prime contractors who use in-house counsel to write onerous uninsurable contracts. (A)
- General contractor takes the DBIA contract and destroys it. (A)
- In the end, the GC does not often work well with the Design-Build team. (A)
- Contracts are written in a more adversarial manner than architects are used to: We would like to see more of a unified/ partnership contract arrangement. (A)
- Prefer to be under architect, beat up less. Onerous contracts from subcontractors. (E)
- Want to be treated in a higher order than a standard subcontractor. (A)
- Contracts don't define expectations like a traditional AIA contract would. This creates uncertainty in the standard of care and how to approach different document requirements. (A)
- Contracts from general contractors come to us with the same subcontractor behavior, down to bond capacity requirements that do not apply to us. (E)

“When teams discuss what to expect early, the project chemistry and alignment goals are more successful.”

- Architect

Section III: Executing the Delivery of Design-Build Projects

Introduction

This section is focused on the execution and construction of a Design-Build project. In Design-Build Done Right®, this section is the least developed and yet causes the most issues for Design-Build Teams. There are many execution Dos and Don'ts that were brought up in detail during the Listening Tour Interviews. It is critical for the success of Design-Build in the Rocky Mountain Region, and nationally, that practitioners continue to enhance our execution of the Dos and find new and innovative ways to stop the Don'ts. Design-Build is different from the project conception through occupancy. Every Team member needs to execute their portion of the Design-Build project well.

DO:

Have the design and build entities form a truly integrated TEAM to take the project from cradle to grave

Following the award of a Design-Build contract, the Design-Builder may retreat into familiar territory, sometimes even at the direction of the Owner. Specifically, this familiar behavior divides the design, preconstruction, and construction into separate, isolated phases with little to no collaboration. There needs to be constant interaction among the TEAM and a strong continuity through the entire execution of the project. It is the responsibility of the Design-Builder to ensure this happens.

From Designers

- Our experience on Design-Build projects first and foremost depends on the team; as measured by its cohesiveness and alignment of expectations. (A)
- It's important to set expectations of each team member in writing, up front. (A)
- A similar mindset should be shared among the entire team. One of the best advantages of Design-Build is working as a TEAM. Overall, our best project experience was working within a Design-Build team. Many say Construction Manager – At Risk (CMAR) is similar, but the same TEAM environment does not exist as in Design-Build. (A)
- Company personalities can be different, some not geared toward Design-Build. One General Contractor we worked with had staff on a Design-Build project with attitude that we are still two different teams/companies. (A)
- The general contractor is failing the team when they are more focused on profit and schedule, and less interested in working well as a team. (E)
- We need to feel we can work well with the GC and want to be friendly outside the business relationship. (A)
- Our structural design process doesn't change as often as it should. The general contractors are not driving integrated processes with their structural subcontractors. (E)

From Builders

- Designer and Contractor should be joined at the hip through the entire project. (GC)
- There is so much turnover with Architect and General Contractor (personnel changes and phase transitions) that it is tough to keep information from slipping through cracks. The team that finishes the job is not the team that starts the job. Critical decisions get revisited too often, adding waste to the process. (SC)
- We see the most difficulty when not everyone on the team has bought-in to the project-first mentality. This creates a lack of trust. (SC)
- Subcontractor was not adequately involved during design. They then came back at 100% Construction Documents with lots of input which required redesign. This missed the mark on our expectation of them as a Design-Build partner (GC)
- Ensure the owner and architect participate in this early teaming meeting to make sure everyone knows their role in the project and feels like they have a voice. (GC)
- Teams that are most successful are teams who made a mistake but overcame the mistake as a team. (GC)

"Ensure the owner and architect participate in this early teaming meeting to make sure everyone knows their role in the project and feels like they have a voice."

DO:

Have a strong design-build leader directing the Design-Build team with clearly identified roles and responsibilities

Consideration of who and why certain roles are filled with specific people is critical in establishing an effective Design-Build Team. Specific positions, including project executives, design managers, and most importantly, the Design-Build leader are critical roles to identify early. The Design-Builder should dedicate a specific Design-Build Leader who is familiar with Design-Build Best Practices, the differences in the design and construction process, and how to manage both. The right Design-Build Leader can and should ensure decisions are made including both design and build perspectives throughout the entire project.

From Designers

- The design phase manager must understand how the design process works. (A)
- It's great when the leader creates a TEAM dynamic with a "Good Will Bank" - You scratch my back, I scratch yours. (E)
- A general contractor that understands the Design-Build process positively impact the project. (E)
- In the general contractor world, many companies aren't set up for Design-Build delivery. Often, only the project executive has Design-Build experience and they are not fully invested in leading the process. (A)

From Builders

- A definition of a "better" project means a stronger leader who manages the owner and the entire team. (GC)
- Someone who listens first, and then talks, makes for a better Design-Build manager. Architects are not always good candidates as a Design-Build manager through construction unless they have a good understanding of how buildings come together and have a good construction background. (GC)
- Trusted relationship = when the general contractor messes up, the designer has their back. When the designer does something wrong, the general contractor has their back. Design builder must be the true leader of that group and set that trust. (GC)
- The Design-Build team needs a thoughtful person who emphasizes Design-Build best practices. (GC)
- If the general contractor is not managing design, reaction to the target value is forced late in the process. (SC)
- The Design-Build Leader on the project should be familiar with both architecture and construction. This leader is a distinctively different role that focuses on continuity with the preconstruction, design, and construction teams throughout the project including team building and collaboration. The Design-Build Leader is the single point of contact with the owner. (GC)
- A general contractor that fully embraces Design-Build will see the big picture a little bit clearer. They can see how solutions they bring to the table affect other trades/areas (SC)
- Worst Design Managers? Taking a Construction Project Manager and add the responsibility of Design Manager. It's a different mindset. (SC)
- Even when the company is great - not every team is the right team for a specific project or delivery method. (SC)

- High emotional intelligence is needed among Design-Build managers for the general contractor to achieve a successful Design-Build project. (GC)
- The role of Project Executive is a part of the sell, but they also shape the project execution strategy. The project executive should expect to take care of that job from cradle to grave to ensure you have success. (GC)
- Roles and Responsibility of players through the project is important. On smaller Design-Build projects, one person can have 3 roles; Pre-con, Estimator, and Project Manager. On large Design-Build projects, the Design Manager cannot fulfill all three roles. (GC)
- A Design Manager with decent skill set is sometimes successful leading the entire project, but not always. (GC)
- Who is the Design-Build leader? Establishing roles typically doesn't

DON'T: Change the Design-Build TEAM leadership unless there is a problem with the team member(s)

Continuity of the TEAM is extremely critical to Design-Build success. Every effort should be made to keep the team members on the project involved from cradle to grave. Processes should clearly identify how decisions are made and how new Team Members are onboarded. When a new team member needs to be added midway through the project, they can easily be brought up to speed on decisions. Conversely, the Design-Build Leader needs to recognize and address when a specific team member is affecting the TEAM dynamics and act swiftly to replace them with someone better aligned with the TEAM's trust, collaboration, and prosperity.

From Designers

- Create transition plans for moving from one phase of the project to another. (A)
- A lot of personnel turnover will lead to problems. Not enough continuity will lead to more hurdles. (A)
- The design manager does not always continue through to construction; they need to follow thru to adequately communicate the decisions made in design to the construction team. As in other delivery systems, the preconstruction personnel need to adequately hand off to the project manager prior to and during construction. (A)
- The Design-Builder leader should not leave the project. Decisions made during design need to be communicated to the field team accurately to avoid revisiting and questioning decisions when construction begins. (A)

From Builders

- The quality of teams varies even within the same company (SC).
- We encounter a universal problem where there is a disconnect between the design team /pre-construction team and installers in the field, regardless of delivery method. (SC)
- Assure continuity of the TEAM. This is critical to the success of any project, but it is extremely important in Design-Build to seamlessly carry design decisions made by the team through construction. (GC)
- If it becomes absolutely necessary to replace a team member, have a process ready to do a hand-off. The process should consider the current progress of the project as well as the extent of the decisions made to date. (GC)

DO: Have experienced team members mentor inexperienced staff and encourage reverse-mentoring

Ensure the existing Design-Build knowledge is shared and less experienced Team Members are mentored throughout the process so they can be more effective. Additionally, there are frequent opportunities for younger generations to mentor up (or reverse mentor). All professionals should be open to different ways of thinking where new innovations can provide solutions to problems the industry has faced for decades.

From Designers

- A lot of knowledge has left the construction industry as veteran workers decided to move on or retire. Therefore, decisions regarding building systems and materials are not made as easily. (A)
- Design used to be more efficient on the front end as general contractor knew how they wanted to build. Now there is a disconnect with the new generation of general contractors whom lack expertise and knowledge, forcing designers to provide more detail in deliverables and, often, rework. (A)
- Our design firm did Design-Build better a dozen years ago. The delivery method has grown and many contractors without Design-Build expertise have compromised the process. (A)
- Recommend re-educating contractors. Many new general contractors win complex Design-Build jobs without much experience. (A)

From Builders

- Design-Build is thrown around a lot when not appropriate. The General Contractor should not refer to a Subcontractor as a Design-Build partner when the subcontractor has no control over an engineer contracted to the Architect or General Contractor. (SC)

DO: Value continuous learning

Utilize Design-Build Best Practices and other Design-Build educational courses to increase the knowledge of the TEAM. Like any other skill, continuous learning and improvement will help elevate the TEAM and project. Resources readily available today teach the essence of the Dos and Don'ts of Design-Build. Never stop learning.

From Designers

- There are currently no projects that our design firm can think of that are "done right" per Design-Build best practices. The market has deteriorated within the last five years. (A)
- Overall, we see a lack of Education in understanding Design-Build. This ranges from owners to general contractors to end users. (A)
- General contractor operates Design-Build as any other delivery method, preconstruction group handoff to operations cause loss of information. (A)

From Builders

- We don't want to re-educate the TEAM every time. (GC)

DO:

Design-Build leader needs to facilitate successful design phase management

Identify how the architects, engineers, contractors, and subcontractors will be moving through the Design Phase. Identify clear expectations of conceptual design and design intent, including documentation of when design decisions and milestones should be reached. Establish clear schedule of deliverables and align the TEAM to this schedule. Educate build partners who are not familiar with the design process. At the core, design phase management is different from construction phase management.

From Designers

- Establish a design schedule that meets the project requirements and is developed by the entire team. Buy-in to the design schedule is critical to the success of the project and must be managed in order to begin construction on-time. (A)
- The general contractor should make sure the architect understands the design packages needed for procurement, construction milestones, Level of Development (LOD), and priority of the various scopes. (A)
- Subconsultant should have a direct line of communication with the design manager. (E)

From Builders

- Identify the design process and how each TEAM member is integral to that process. (GC)
- As an example of an efficient design process: When an Engineer is contracted by subcontractor, the subcontractor can direct the engineer when an issue is discovered, have an immediate discussion, and make firm decisions in hours instead of back and forth for days. (SC)
- We have frustrations with managing the design professionals. Design professionals do not know how to accurately predict their timeline. (GC)
- Getting the design schedule was hard – they don't know how to schedule themselves. (GC)
- The processes of the designer and contractor are very different. In traditional roles, the designer starts with a blank sheet of paper; the general contractor starts with a set full set of documents. We all need to understand the difference. (GC)
- The general contractor desires to give the Owner what they want, not what they have bought. Need a better way to make the reality come to light faster. (SC)
- The designers' job is to design a good project and be a good partner. (GC)

"In traditional roles, the designer starts with a blank sheet of paper; the general contractor starts with a set full set of documents. We all need to understand the difference."

DO:

Communicate documentation requirements early

The TEAM must have specific discussions on what is needed from the designers for pricing, permitting, and construction. Efficiencies in detailing and methodology can only be achieved if these discussions happen early and if the entire team understands what the design deliverables look like. Similarly, the designers will need specific information from the build partners for such efficiencies to be realized. The contractor and subcontractor have a responsibility to fully participate in the process.

From Designers

- Design-Build does not allow us to do less drawings. (A)
- We have never seen a Design-Build project that required less design work. (A)
- People perceive documentation is less in Design-Build. (A)
- Not enough checks and balances to ensure design intent was captured appropriately. (A)
- People think that engineers will design less, detail less, because it is Design-Build. Unfortunately, the opposite is true. If in fact the designer does not detail or provide complete specifications and the contractor does not install the equipment correctly, or have the proper means and methods, the engineer gets blamed. (E)
- Coordination of scopes that aren't in the contract can create issues in the documentation process. (A)

From Builders

"Subcontractors try providing the same services in design/assist and Design-Build, resulting in incomplete design drawings and increases in price late in the design/construction."

- Our company has increased the amount of experienced leadership skills applied to the project upfront. (GC)
- Need agreement on the level of design required between the architect and general contractor. (GC)
- All team members should step up the communication of what their deliverables mean. (GC)
- Subcontractors try providing the same services in design/assist and Design-Build, resulting in incomplete design drawings and increases in price late in the design/construction. (SC)
- Trades should take more time with documents early to evaluate construct-ability (plus schedule, site logistics, etc.) helping to make documents better moving forward. (GC)
- The team needs to understand and have experience with what they are building. (SC)
- Don't move forward with a design detail if you know it is changing. (SC)

DO: Develop a process for making decisions

The Design-Builder should quantify what team members need to be involved for specific decisions and ensure all members are present for the decision-making process. The Design-Builder should designate a process to first present the TEAM with decisions, bringing matters to the Owner when appropriate. It is important for the Architect and the Owner to understand how design decisions will be made. In order to deliver the best project solutions in Design-Build, all team members should be present for critical decision making.

From Designers

- The Architect/Engineer struggles when the traditional relationship with the Owner does not exist. The Architect/Engineer needs to be incorporated when decisions are made by the Owner. (A)
- Architect needs to play an active role, so contractor isn't driving the bus by themselves. (A)
- Design Communication with the Owner is paramount to success. (A)
- Project suffered when meeting minutes were not kept. Meeting minutes are critical. We have kept our own meeting minutes when the general contractor or lead does not. (E)
- If the trade representative (for curtain walls, for example) has a direct line of communication with the designer the process works well. If this conversation is controlled by the general contractor, it doesn't. (A)
- The contractor may have a critical conversation about glazing on a large municipal project with the supplier, rather than the architect. When the designer creates a specification to meet LEED Platinum and the supplier needs to meet the budget, the two don't align. (A)
- Without a contract directly with Owner, designers don't feel they have a voice (A).
- The designer often gets blamed like subcontractors. However, if a general contractor is a good Design-Builder they realize it is one team and one responsibility. (A)
- The Owner sometimes does not require the architect to be present early in the process more than once a week. When an important decision is made the entire team should be present. (A)

From Builders

- Architect was concerned that they would be cut out of the communication loop, but when the General Contractor buys into the team approach, the design process didn't feel disjointed at all. (GC)
- Team needs to make critical decisions with owner throughout the project and accurately document those decisions for future reference. (GC)
- We are okay with different iterations from the architect, but general contractor can't sign off on an area and then have the architect go back and continue to redesign. (SC)
- The architect/engineer looks out for the Owner's best interest because of future work opportunities but not for the best interests of the project. (SC)
- Team members are leveraging their Design-Build Owner relationships by focusing on getting the next non-Design-Build job. Teams need to stay focused on their responsibility to the current project. (GC)

DO:

Ensure all TEAM entities are on the same page about project goals: Design excellence, budget, and schedule

The goals for each project need to be discussed and agreed upon by all TEAM entities at the beginning of the project. Clearly establish how those goals will be managed over the course of the project. The goals should be used as a guiding compass to ensure the result and product meets the Owner's needs.

From Designers

- What is the contingency at an SD/DD level? Did you discuss it? 5% is not enough. (A)
- Design-Build team needs to work as a single entity, a single company. Don't hide contingencies, don't conceal priorities. Transparency has historically been the best rule of thumb for the entire team. The Architect should know all GC risks/goals and vice versa. (A)
- More trust among the team means less stress and better relationships. Projects are preferred with teams that work well together. (A)
- Include enough checks and balances to ensure design intent and quality remains intact. (A)
- Systems selection: Make sure you consider having the right trade partners involved for schedule or constructability input (A)

From Builders

- Discuss contingency with your trade partners and how it should be included/excluded prior to GMP and GCs expectations on how it will be used after GMP. Explicitly state allowances in cost-plus work. (SC)
- Changes throughout the project are based on a give and take, and as problems come up an evaluation must be made what is the priority. (GC)
- Design-Build is a delicate process; the architect does not want the design to exclusively center around the budget and schedule, but to include good design in the end product. (GC)

DO:

Interact in real-time with the desing partners to continuously incorporate pricing impacts

Integrating "real time," accurate, and industry sensitive pricing to design concepts as they occur will keep both the design and build partners efficient. It allows the Owner to have an informed budget to make decisions. Involve the design partners in the cost analysis of design concepts, taking into consideration the impact on all disciplines in relation to design and construction.

From Designers

- When the team has a Bid mentality – The result is likely Round 1 & 2 pricing are in budget and then a month later, we see a significant cost spike (based on design progress). The problem is lack of communication and reliable cost information. (A)
- We would like to have more interaction with subcontractors to discover better alternatives and understand pricing implications. (A)
- On a large municipal project, the contractor had a conversation about glazing with the supplier, rather than the architect. When the designer creates a specification to meet LEED Platinum and the supplier needs to meet a budget, the two don't align. (A)
- Designer would like to have more interaction with subcontractors to discover better alternatives and understand pricing implications. (A)
- We have found that open-book estimating and being transparent enhances the trust within the team and with the owner. (A)
- One of the benefits of Design-Build is real time pricing, if it is done right. Unfortunately, Design-Build is not done correctly and 70 or 80 percent do not go well. (E)
- Scope narrative of what's included must be better, shared by GC. (E)
- The designer feels like the GC/Subcontractor lacks knowledge of design; just pushing - 'does this one work?' based on the assumption that the proposed substitution is cheaper therefore better for the budget. (A)
- Design team treated as commodity. Keeping schedule sacrifices design quality in envelope, aesthetics, or performance. (A)
- The general contractor needs to invite/involve the designers in the subcontractor buyout and scope meetings to allow for collaboration. (A)

From Builders

- Designers should abandon the mentality that they have no responsibility in maintaining the budget. (GC)
- Employ a living conceptual estimate, where a target price is based on what we talked about before he/she draws it. (SC)
- Understanding the unique parameters of the different building types and systems is imperative for all team members to understand budget impacts. (SC)

DON'T: Price and manage the budget in a vacuum

The build partners should integrate into design decisions before the design partners put pen to paper. If the builder treats pricing like typical Design-Bid-Build and prices the documents after each phase is complete, rework will be necessary. The trend log should be ongoing as pricing is not a snapshot in time but a fluid exercise that changes daily.

From Designers

- No trend log is kept or shared, and then contractor or subcontractor says you're over budget. (E)
- The least successful projects always come down to money and end up in a bid mentality. (A)
- It is counterproductive for product/specs to be demanded by the general contractor or subcontractor. Contractor should include us in the discussion of options. (A)
- SF pricing gets everyone into trouble: Best General Contractors ask specific, pointed questions about products and assemblies early in design. (A)
- We see a lot of late Value Engineering changes due to inaccurate pricing. The current labor market is affecting pricing and making projects less affordable and unpredictable. (A)

"We see a lot of late Value Engineering changes due to inaccurate pricing."

From Builders

- If a project is over budget, but the general contractor is active in construction (such as proceeding with underground work), you are likely setting the team up for major delays and changes. Real time decisions need to be communicated to the field team to keep the overall project on track. (SC)

DON'T: Hard-bid documents in Design-Build

Selecting key subcontractors through the traditional Design-Bid-Build process or selecting them too late hurts the project. This will disrupt the schedule as well as erode the trust developed throughout the whole process.

From Designers

- Sometimes subcontractors are brought aboard at later stages of the project, which creates havoc with the design schedule and re-design is needed. (E)
- Early engagement and feedback from key trades on projects is one of the most important things for subconsultants. (E)
- Contractors and subcontractors must understand that they cannot hard bid off a concept design. They need to change the way the price and award scopes in Design-Build. (A)
- Always comes down to money, always ends up in a bid mentality. This is not Design-Build. (E)

From Builders

- Structure and drywall/framing are the two subcontractors most often left out of an early award, which will hurt the design. (SC)
- The steel fabricator needs to be on board and be at the table early. If you've reached 100% construction documents during Design-Build without a steel fabricator, then you get stuck re-coordinating. Whole structural models change when the fabricator gets on board at construction documents which impacts all trades. (SC)
- Open ceiling concepts will often have loud mechanical equipment. This is easier to solve during design while working directly with the engineer. (SC)
- Equipment control vendors are more of a team member in Design-Build and can help solve problems in design. (SC)
- Align equipment vendor and temperature controls vendor to resolve issues early by seeking common ground of what performance success looks like. (SC)
- Utilizing lessons learned from previous jobs. (SC)
- When you bring in a Design-Build subcontractor late in the design process, you are limiting the ability of the subcontractor to provide benefit to the project. (SC)

DO:

Require the contractor and subcontractor's entire teams to be involved during design, including the appropriate field personnel

When build partners are not present during design, many decisions get made without their input. Input from the field teams is invaluable during design to ensure constructability, logistics, or construction sequencing are considered. Each field leader has unique opinions on how to best implement a project solution. Getting the input and buy-in from the field leaders is critical to project success, and it can save the design team members countless hours of rework and minimize issues once construction is started.

From Designers

- The contractor struggled to keep team dynamics together due to fluid movement of people - trade to trade, field to office. (A)
- We ended up losing a ton of general knowledge about decisions made during design due to leadership transitions. (A)
- Problems arise when the preconstruction team is different from the construction team. The preconstruction team helps designers go through pricing and value engineering, work through the scope and get agreement, then the construction gets involved and doesn't understand those agreements. (A)
- The design phase manager wasn't involved through the construction process. Minimally involved through the buyout and just reviewing shop drawings was not enough. (A)
- The design manager with the general contractor rarely continues this role throughout the project and often disappears early in construction.
- We re-educate the operations team members several times because they weren't involved in design. (A)
- Superintendent not involved early enough, and estimators don't stay involved long enough. (A)
- A good conceptual estimator is critical and can price options in days, not weeks. (A)
- The contractor limited our involvement until they agreed to contract with Owner. This helped limit our investment and time before the project was awarded, but preliminary design decisions were already being made. It was a challenge for the team to fully integrate when we were finally brought on. (A)
- Consensus around deadlines is important. Design-Build TEAM leader should be driving deadlines, but not forcing deadlines. (A)
- Adversarial relationships derail projects but transparency builds trust. (A)
- Bring the people who actually do the work to the table on day one. Subs on board at schematic design, major subs PRIOR to schematic design so that design is kicked off in the right direction. (A)
- Tell consultants that they must update their model throughout Construction Administration, not just issued for construction drawings. (A)

"Bring the people who actually do the work to the table on day one. Subs on board at schematic design, major subs PRIOR to schematic design so that design is kicked off in the right direction."

From Builders

- We see loss of information in the transition from design to construction. When the field team is not involved in design, they tend to start from scratch remaking decisions preconstruction team already made. (SC)
- Installers / superintendent on site have no idea about the deals made during design and preconstruction. (SC)

DO: Evaluate the use of technology and how the TEAM will collaborate in using technology

The contract and/or teaming agreement should identify technology requirements and establish tools to be used throughout the project. The agreement should identify how each member of the TEAM will use the tool and how each tool will integrate into the overall project. Each tool should have a clear purpose, requirements of information to be shown in that tool, and details of how updates will be shared with the TEAM.

From Designers

- Toolsets and workflow have evolved, but still not integrated and very distinctive. Design, estimating, scheduling. (A)
- Every team uses a different tool (A)

DO: Analyze thoroughly the size and complexity of the project to identify if co-location will be beneficial

Co-location can be very efficient when used correctly. Conversely, it can also slow down a project if team members are collocated without defined expectations. Ensure that the right resources are available to the collocated parties and that a schedule of activity and meetings is developed and respected.

From Designers

- Co-location is tricky when the team is dividing their time for smaller projects. (A)
- If the design fees are not adequate the architects no longer have the budget to attend every meeting and contractor wants to control the meetings. (A)
- Address the co-location requirements of the contract as a team and develop collocation strategies to address the project needs. (A)
- If the contract does not require co-location analyze the project size and complexity to determine if the Design-Build TEAM would benefit from co-location and how extensive that co-location should be to best benefit the project. (A)

From Builders

- Don't dictate co-location before discussing it with the entire TEAM. If co-location is determined to be the correct path to take discuss with the TEAM to determine to what degree each discipline will participate. (GC)
- Training is important including co-locating with designers early in the project and contractors later to maintain knowledge and improve on lessons learned. (GC)
- The team should decide member roles and make key decisions early that identify co-location objectives. Too many meetings regardless of co-locating or not can become very ineffective and waste time. Owner was in an out but didn't camp out. (GC)

DO:

Continue to integrate the TEAM through construction

TEAM collaboration, TEAM trust, and problem-solving as a TEAM are key advantages of Design-Build. Strive to maintain the TEAM chemistry established by continuing to integrate build partners into design and design partners into construction. Having the build partners involved on an ongoing basis allows for the TEAM to specifically address constructability and logistics as design progresses. Having the design team involved ensures design intent and project goals are maintained all the way through construction.

From Designers

- Constructability reviews and critical systems changed in construction, going back on decisions that were made during design. (A)
- General contractor needs to police subcontractors. (E)
- They did not install waterproofing detail as designed. We pointed this out to the contractor, but they stood firm and would not change it. The contractor kept saying "we're not doing that; you work for us". It goes against ours responsibility to uphold a standard of care. (A)
- We like when the culture is maintained in the field; subcontractors look out for each other. (A)
- Owners are less frustrated and spend less time arguing on change orders during construction administration when the field guys are bought into the process too. (A)

From Builders

- Designers are more involved in the field when the project is Design-Build. When the designer is more engaged, solutions are faster. (GC)
- On one project, the Architect was required to include a very specific allowance for construction administration fees. They are not as actively involved because they are trying to manage their budget. Their disengagement is where we all lost money and team collaboration. (SC)
- The Subcontractor should integrate so that construction coordination happens during design. (GC)
- On large projects, there are lots of framing details and the framer is needed to help coordinate. Can't rely on the architect to communicate via the drawings what is actually needed to construct the walls. (SC)

“Team members tend to leverage their Design-Build Owner relationships by focusing on getting the next non-Design-Build job. Teams need to stay focused on their responsibility to the current project.”

- General Contractor

Conclusion

The results of our Listening Tour are re-affirming of the DBIA Best Practices, yet alarming to most of us listening. Not only were the raw comments and detailed stories (good and bad) compelling to hear, but whether you're an owner, a designer, or a builder, whether you're one year into your career or one year from retirement, the experiences we've heard have the power to impact us all and change project outcomes. We were able to draw conclusions and see overarching themes through all the feedback. Concentrating on selecting the right team, communicating effectively with, integrating, and training/mentoring that team throughout the project sets any project up for success.

Lesson 1:
In order to improve, we must stop and listen.

With continuous improvement in mind, we offered the interviewees the microphone, our time, and our ears. The intent was to create a platform of anonymity to get honest feedback. We are very grateful for all the participants in the listening tour. Through the process, we hope all have been challenged to find more effective ways to listen and communicate, strengthen relationships, and help make this amazing work we all do better.

Lesson 2:
When Design-Build is done right, it work!

The delivery method proves to have the power it promises, including better teams, better solutions, and better outcomes. The good stories we heard reaffirmed this committees' faith in the Design-Build process. When the TEAM is committed to Design-Build Done Right®, egos are left at the door and everyone is engaged. There is an opening for everyone to win. The results include friendships forged that have exceeded retirement, buildings that will last well into our grandchildren's lifetimes, and innovations that have grown into industry-wide common practice.

Lesson 3:
The Dos and Don'ts are not project-level specific.

We heard hundreds of micro- and macro-level lessons that are transcribed as specific Dos and Don'ts within the framework of the best practices. These lessons are valuable not only at the project level but at the organizational and personal level. Many principles can be scaled up to fit teams working on multiple, separate projects simultaneously or successive projects for the same Owner. More importantly, many lessons can be scaled down to fit personal and professional relationships. Mentoring can include teaching someone new to the industry or long-time industry veterans learning from someone with fresh eyes. These Dos and Don'ts can be applied to any given task, process, or strategy, showing what it means to trust, train and surround yourself with and rely on the right people for the problem at hand.

Lesson 4:
We need to practice what we preach.

Many of the challenges we heard are already addressed by the DBIA best practices in Procurement, Contracting, and Execution, yet many of us with access to these resources continually allow ourselves to operate with old habits.

Integration, especially during design phase, activates more cross-pollination of stakeholder roles and responsibilities, blending together team members across disciplines and companies. However, increased specialization promotes delegated design and creates additional handoffs and, therefore, transfer of risk. Vertical integration of teams is more accessible and common today than ever. In practice however, teams must balance a project-first mentality with a heightened awareness of what drives their individual company's success.

Design-Build education that emphasizes training on these high-level issues is readily available today, nationwide. Therefore, the value in this lesson is that we, as Design-Build practitioners, need to double down on education during this time of proliferation of the delivery method, especially with more people departing to other industries, and new generations and technology dominating our workforce. If dissecting the comments brought to light one thing, it is that we need both more education and more focused education, both of which should have a tone underlining that we should all choose to do what benefits the owner and the projects.

Lesson 5:
There is no value greater than Lesson 1: The best use of our time is to stop and listen.

The complexity of what we heard was so much more than we thought possible in this endeavor. But the real value comes in the form of sharing these words with the Design-Build community and our industry. This document is only the first avenue through which the stories and lessons learned heard on the tour are being brought to a broader audience. Several subsequent opportunities are in development, through which we will receive more valuable feedback. With exposure of this prized material, we hope to bring light to more unheard stories (good and bad), broader issues, bigger pitfalls, and greater successes. Root causes need to be identified, and underlying issues uncovered, studied and discussed to be understood contextually. Only then will pointed solutions be revealed and a path forward will emerge.

"When Design-Build is done right, it works!"

Design-Build done wrong, any delivery method done wrong, is damaging to the industry. There is a place in this business for everyone to win. It is often necessary to put individual success aside to form true TEAMs of trust and integration. We can challenge each other to be better.

We need to create new solutions to old problems, or more commonly, we need to simply teach others to apply old solutions (best practices) to new problems. We charge you, as the reader, to bring attention to these Dos and Don'ts, to the decision makers in your company, to team members on every project you are a part of, and to your personal network influencing the future of our industry. We challenge you, as the reader, to be the mover and shaker. Move the needle, however so slightly. These Dos and Don'ts must be known by the doers (you and all of your colleagues) on every project to become pervasive and uphold the solidarity of Design-Build and it is your responsibility to take action today.

Free Resources and Networking

Universal Best Practices document:
https://dbia.org/wp-content/uploads/2018/05/Best-Practices-Universally-Applicable.pdf

Market Sector Best Practices and deeper dive documents:
https://dbia.org/best-practices/

Includes:
- Choosing a Project Delivery Method (Best Practices only)
- Transportation
- Water/Wastewater
- Federal
- Progressive Design-Build
- Public-Private Partnerships (P3)
- Selecting and Using an Owner Advisor

Helpful position statements for key topics in Design-Build:
https://dbia.org/best-practices/

Inlcudes the following topics:
- Sustainability
- LPTA Procurement
- Design Excellence
- Best Value Selection
- Qualification Based Selection
- Design-Build Teams
- Use of Stipends
- Integrated Project Delivery

https://www.dbiarockymountain.org/docs/DBIA_RMR_-_Yearly_Calendar_-_2019.pdf

Formal Education and Training

https://dbia.org/get-certified/

https://dbia.org/courses/in-person-course-details/


DBIA
ROCKY MOUNTAIN REGION