

Selecting a Design and Construction Team

At the beginning of a construction project many construction buyers find themselves asking, “How do I choose a designer or builder for my project?” The traditional construction delivery method was to select an architect to design your project, and then bid out the construction. Today, there are several commonly used construction delivery methods. These newer methods utilize collaboration and teamwork between the designer, builder, and even subcontractors.

The three primary construction delivery methods used are Design-Bid-Build, Design-Build, and Construction Management at-risk. Most designers and builders have organized their businesses to be most efficient at only one of these three methods. Therefore, selecting the construction delivery method best suited to your project is a prerequisite to selecting your team. We have prepared this overview of different construction delivery methods to aid you in selecting a design and construction team.

Every building project involves balancing many competing factors that define success for the project. The key to selecting the best construction delivery method for your project is deciding the relative importance of the following four groups of factors.

- 1. Building Characteristics.** Factors such as building appearance and impression fall into this group. Does the exterior of the building need to project strength and permanence like a bank, or economy like an auto parts store? The energy efficiency of the building and expected life span of building elements also fall into this category. Building characteristics lead to the selection of building elements.
- 2. Design and Construction Cost.** For many construction buyers, the project cost is the most important factor. We encourage construction buyers to also consider financial factors such as life cycle costs vs. first costs, resale value, and building ownership vs. leasing options.
- 3. Design and Construction Time.** Design and construction schedules fall into this group. How quickly is the building needed? Is the construction season dictated by weather? Does the building have to be completed by a certain date such as the start of an academic year or the Christmas shopping season?
- 4. Construction Buyer Involvement and Control.** These factors dictate how project decisions will be made. What level of decisions will be made by the construction buyer and what will be delegated to the designer and/or builder? Different construction delivery methods require daily, weekly, or only monthly buyer involvement.

The chart below indicates relative performance of the three construction delivery methods with these factors in mind.

Construction Delivery Method	Building Characteristics	Design & Construction Cost	Design & Construction Time	Buyer Involvement
Design-Bid-Build	Best	Good	Fair	Daily
Design-Build	Better	Better	Best	Monthly
Construction Management	Best	Good	Better	Weekly



Design-Bid-Build This is the traditional delivery method and is still used today by many public construction buyers. It places primary importance on building characteristics and primary responsibility with the designer. A designer is hired to prepare the design and then bid it out to contractors. The lowest cost contractor is then hired by the construction buyer to construct the project. This method assumes the final product will be the same irrespective of which contractor does the work. Using this method, the contractual relationships between designer, builder, and owner are adversarial. Because design and construction are treated as separate sequential operations, it requires the most time from beginning of design to completion of construction. This method relies entirely on the designer to make value judgments for the construction buyer as only order of magnitude building element cost information is available until after the design is complete and bid out. It works well for a construction buyer who wants to maintain control of all decisions, but it requires a correspondingly high level of construction buyer involvement from beginning to end. Unfortunately, it is often plagued by final costs significantly different than the designer's budgets and schedule overruns.

Design-Build This is a newer delivery method that is now nearly as popular as the traditional design-bid-build method. Design-build places primary importance on design and construction time, with a heavy emphasis on design and construction cost. The construction buyer hires one entity that has all responsibility for design and construction. This method works well if the design-build firm specializes in the type of building you need. Because design and construction are treated as parallel concurrent operations, it requires significantly less time from beginning of design to construction completion. Because design and construction are furnished by one entity this method also produces the most accurate and earliest cost budgets. The design-builder prepares building element cost budgets and schedules throughout the design phase. These give the construction buyer the information he or she needs to make value judgments from the outset of design. The construction buyer, with the advice of his design-

builder, decides how available funds should be allocated. A construction buyer will minimize his involvement in day to day decisions with this method by delegating authority to the design-builder.

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Construction Management at-risk This is also a newer delivery method. Using this method, a construction buyer hires a designer and a builder, called a construction manager, from the outset of the project. This method combines the designer's creative skill with the builder's costing and scheduling skill by creating a collaborative team working with the owner. The construction manager prepares building element cost budgets and schedules throughout the design phase. The construction buyer, with the advice of his collaborative design and construction team, decides how available funds should be allocated. The construction management delivery method can also allow shorter design and construction schedules if the construction manager treats design and construction as parallel concurrent operations. There is more required construction buyer involvement than with design-build, and it is more strategically timed than using design-bid-build.

Regardless of which construction delivery method is chosen, adding the state of the art design and management tool Building Information Modeling (BIM), and using Virtual Design and Construction methodologies will improve the outcome of your project. These new tools and methods will provide for better design decisions and a smoother flow of information within the design and construction team ensuring that the approved design is efficiently brought to reality. ■

Ben Schwab is founder and president of VDC Partners LLC. Ben grew up in the industry and represents the 4th generation of builders. He is a graduate of Iowa State University, B.S. Construction Engineering, and has extensive experience working in the family business and for other national construction companies. VDC (Virtual Design & Construction) Partners, provides a blend of services, productivity tools, consulting, and training to help construction owners, designers and builders effectively harness computer technology tools to increase their productivity and convenience, and in turn offer more valuable services to their customers.