

The following chapter is from *Launching a Healthcare Capital Project* by John E. Kemper

CHAPTER 4

Contracting

Approaches

Creative contracting can greatly reduce project risks.

ANY MAJOR PROJECT INVOLVES SIGNIFICANT risk. Healthcare projects are especially risky because they have the potential to disrupt life-saving services. During the project launch phase, the CEO should conduct a risk assessment to better understand the risks associated with the design and construction of the project and to find ways to minimize these risks through the creative use of the external delivery team. The risk equation involves the budget, schedule, design, and construction. ▶

This chapter explores the concept of minimizing design and construction risks by controlling the budget and schedule. The three major contracting approaches used in major projects are also discussed in depth.

PROS AND CONS OF THREE CONTRACT APPROACHES

Healthcare projects rely on these three contract approaches:

1. Design → Bid → Award
2. Design/Build
3. Construction Management at Risk

Approach I: Design → Bid → Award

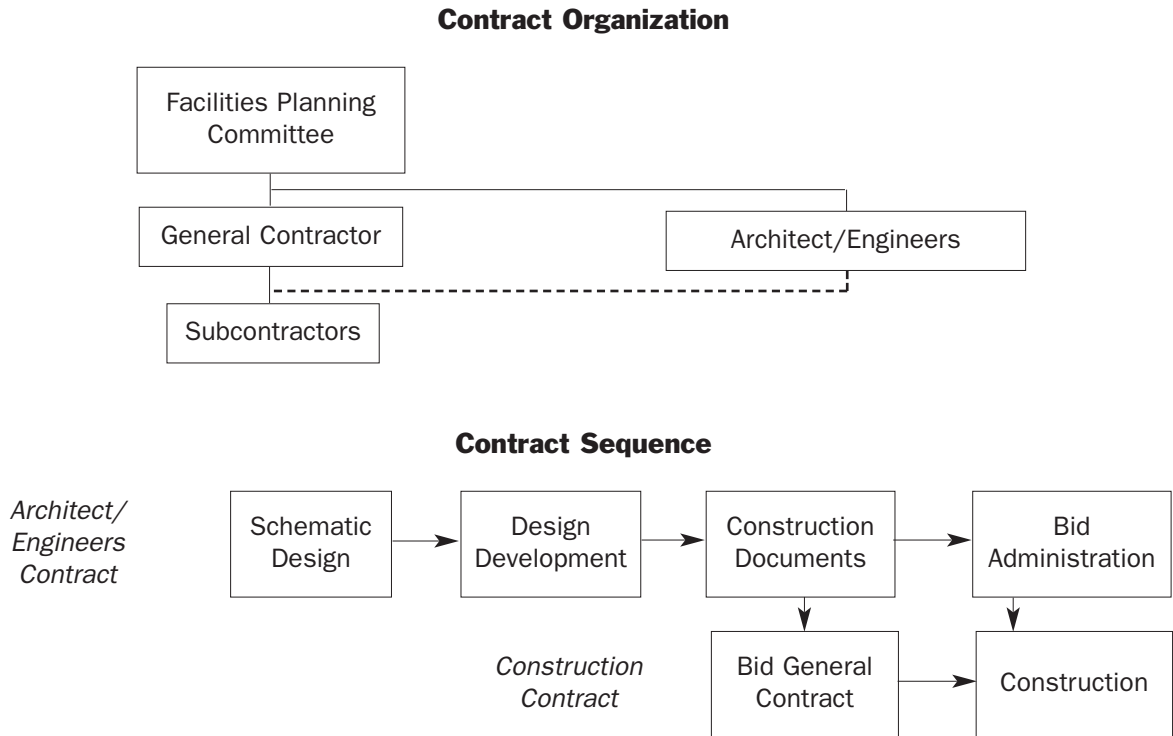
Under the traditional *Design → Bid → Award*, or lump-sum bid, approach the CEO hires an architect to prepare architectural, structural, plumbing, mechanical, and electrical drawings and specifications. In this approach, a contractor is not involved in the design phase of the process. The architect completes the project design and prepares bid documents, including an invitation to bid; instructions to bidders; and, usually, a contract form that the successful

bidder is expected to sign. The successful contractor is generally the one with the lowest price bid, the most responsive bid (which means that the CEO and the architect both think that the scope and intent of the construction documents have been adequately addressed in the bid), and the expressed ability to adhere to the schedule requirements specified in the construction documents. Figure 4.1 illustrates the contract organization and the contract sequence for the Design → Bid → Award approach.

In theory, the Design → Bid → Award approach yields the greatest economy for the organization because bidders are for the most part competing on price. In addition, contractual documents in this approach clearly lay out the responsibilities of the parties and the limits of each party's liability, reducing gray-area conflicts. However, this approach presents several practical problems.

First, because the project is not bid out until the design is completed, the delivery team does not have a clear picture of the price of construction until the bids come in. The bids may be over the capital allotted for the project. Not knowing the cost ahead of the bid time is problematic because

Figure 4.1. Design → Bid → Award Approach



it prevents the team from working within budget limitations. After the bids come in, redesigning the project to meet the budget is difficult and the team’s ability to control cost is greatly reduced.

Second, the lowest bidder may not be the best overall choice. One reason for this is that the lowest bidder has incentives to use the least expensive materials and methods allowed under the contract.

Third, the lump-sum contract does give the organization the benefit of a certain price, but that price may be higher than necessary. A lump-sum bidder often includes a contingency amount or cushion in its bid to allow for uncertainties, which may or may not materialize. If uncertainties do not occur, the organization has paid unnecessarily for them.

Fourth, under the Design→Bid→Award contract, any savings that the

contractor is able to generate through aggressive bidding and negotiations of trade subcontracts are retained by the contractor. The organization does benefit from the price competition between contractors at the time of the bid. However, once the organization accepts a bid stating the contract amount, any competition that is ongoing between the contractor and trade subcontractors benefits only the contractor.

Fifth, because economic positions are fixed, each party has a greater incentive to safeguard its monetary position to the exclusion of the interests of the other parties, especially the organization's. This stimulates an adversarial relationship, more than is possible in any other contract approach. The self-interest, rather than the concern for the welfare of the organization or the project, leads to relationship conflicts and contractors' inability to adapt the project to any changed needs or circumstances.

Following is a summary of the pros and cons of the Design→Bid →Award approach:

Pros:

- May yield greatest economy because of price competition among bidders

- Results in low initial price
- Contractor has single responsibility for construction

Cons:

- Construction cost is unknown until bids come in
- Organization has less control over subcontractors
- Bid price includes contingencies, which may not occur
- Encourages change orders
- All cost savings after initial bid benefit the contractor
- Stimulates adversarial relationships
- Presents the highest risk

The Design→Bid→Award approach is best suited for a single project with a finite scope, flexible completion date, a complete set of design documents, uncomplicated occupancy requirements, and building type with low potential for changes and cost overruns.

Approach 2: Design/Build

In a *Design/Build approach*, design and construction phases are merged. The delivery team contracts with a single entity for both design and construction of the project. This single entity may be a joint partnership between an architect, an engineer, and a contractor; a

design/build firm that offers all the necessary disciplines; or a contractor who subcontracts with a design team.

The Design/Build approach presents several advantages to the organization. First and foremost, there is a sole source of accountability under this arrangement. When the designer and builder are one, no finger-pointing occurs between the contractor and the architect, which can occur in a traditional contractual arrangement. In addition, this approach can accelerate the project schedule and enable earlier occupancy of the facility.

This arrangement can produce a set of conflicts as well. First, the designer/builder typically quotes a lump price for the contract and is reluctant to “open the books” to the internal delivery team so that the items in the contract can be reviewed. In addition, the internal team cannot determine the level of finishes and the quality of mechanical, electrical, and plumbing systems included in the quote. Scope conflicts often arise when the team demands certain elements, such as a higher level of finishes or a higher grade of mechanical system, that the team assumed were included in the scope of the project but in reality were not part of the initial price submitted by

the designer/builder. Figure 4.2 illustrates the contract organization and contract sequence for the Design/Build method.

Second, the Design/Build approach changes some of the fundamental roles of and relationships between the contractor, organization, and designer. For example, the contractor has no claims against the organization for producing defective plans and specifications because the contractor itself created the drawings. In addition, this approach eliminates the architect’s role in approving payments to the contractor when a certain work is delivered. As a result, the team has to be more attentive to the actual progress of the work.

Following is a summary of the pros and cons of the Design/Build approach:

Pros:

- Offers a sole source of accountability
- Is a turnkey arrangement
- Increases potential for early completion
- Reduces design and construction change-order liability
- Is less adversarial

Cons:

- Offers no outside monitoring of construction

- Introduces more questions about scope
- Quality of design and material is hard to determine
- Allows the organization no control on component costs
- Minimizes innovative design potential
- Total price can be higher to offset potential liability

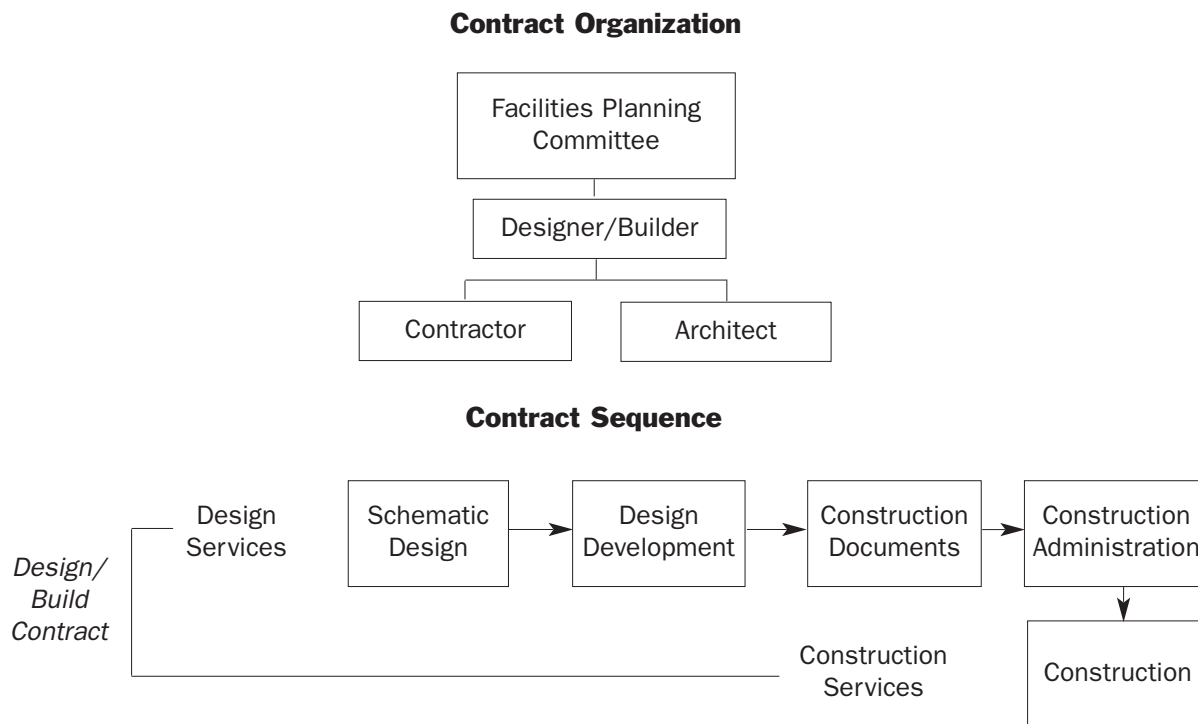
The Design/Build approach is best suited for a single project with a

simple building type (for example, a medical office building), minimal space programming requirement, stakeholders who do not want to be involved in design decisions, and short and inflexible building schedule.

Approach 3: Construction Manager at Risk

The *Construction-Manager-at-Risk* approach offers the best features of the other two contracting approaches.

Figure 4.2. Design/Build Approach



Under this approach, the team brings on the construction manager (CM) during the launch phase. The CM assists in cost estimating, value engineering, site phasing and management analysis, constructability reviews, and preliminary scheduling. Typically, the CM develops four to five estimates at key design milestones to ensure that the design is within established budget parameters. Throughout the design the CM works with the delivery team (specifically, the architect and other design professionals), providing input when necessary so that cost and value are considered before the design is finalized.

Following the design phase, if the internal team is pleased with the performance of the CM and the construction estimates provided, the team can then negotiate with the CM a guaranteed maximum price contract. The CM provides payment and performance bonds to ensure that the organization is fully protected in case of problems with the project. Because the CM is contractually responsible for the entire project, that firm is in the best position to provide this overall protection. By providing maximum protection for the organization's substantial capital investment, the approach minimizes the organization's risk.

Hiring a CM presents significant advantages. First, the CM allows the team a high level of control over the project cost and schedule. Second, the CM lends pertinent construction expertise to the design process at times of maximum usefulness. Third, the CM fosters a team orientation that is focused on maximizing the success of the project. Figure 4.3 illustrates the contract organization and contract sequence for the Construction-Manager-at-Risk approach.

Following is a summary of the pros and cons of the Construction-Manager-at-Risk approach:

Pros:

- Fosters team orientation
- Allows for tighter control of pricing and schedule
- Allows for phased construction
- Is price competitive at subcontractor level (which is 90 percent of total construction price)
- Offers full disclosure on status of cost and schedule throughout the delivery process
- Reduces risk

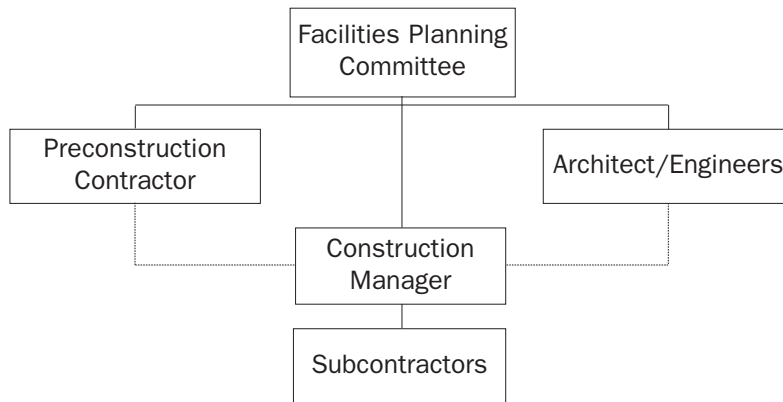
Con:

- Perception that price competition is limited

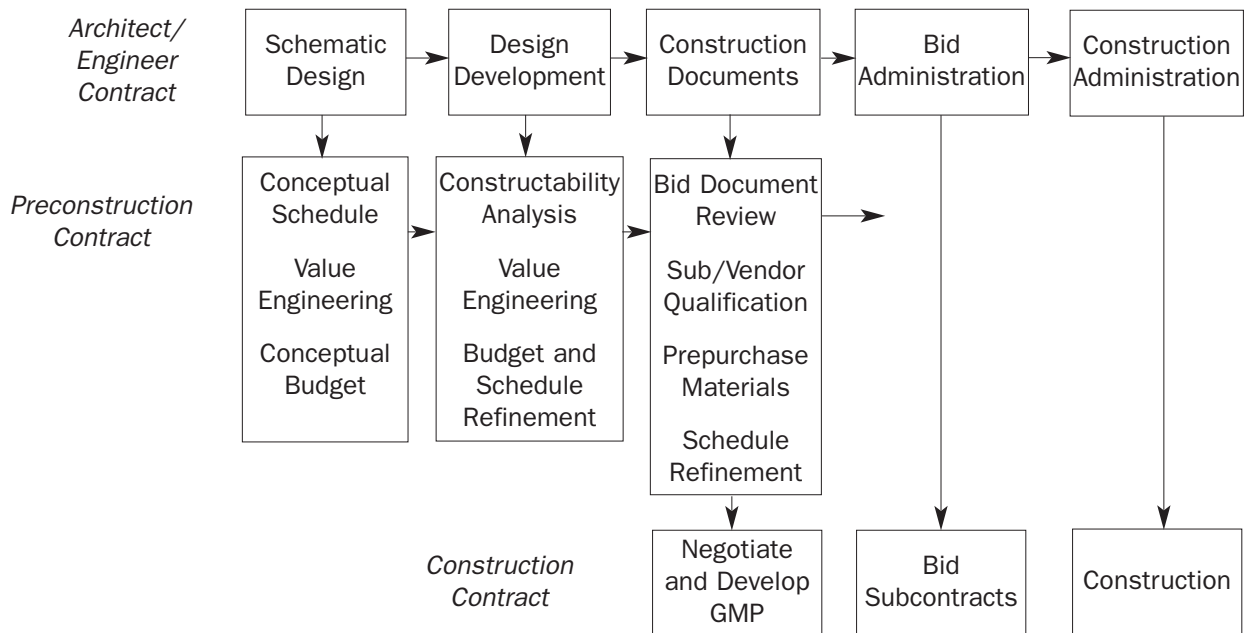
The Construction-Manager-at-Risk approach is best suited for large and

Figure 4.3. Construction-Manager-at-Risk Approach

Contract Organization



Contract Sequence



complex projects with challenging occupancy schedules.

A RECOMMENDED APPROACH TO MINIMIZING RISK

It is paramount to the success of the project that the CEO is engaged in a contractual relationship conducive to teamwork. A lump-sum arrangement, such as the Design → Bid → Award approach, encourages each party to take advantage of circumstances to preserve its own self-interest, which breaks down a team orientation. This approach is likely to create an adversarial climate early on among the internal team,

architect and design team, and the contractor's staff. The same can be said about the Design/Build approach.

The recommended approach is the Construction Manager at Risk because it provides as much flexibility and team orientation as possible. Continual cost and schedule control are critical to project success, and the Construction-Manager-at-Risk approach allows the internal team to know the cost and schedule as the design proceeds. This approach presents the lowest risk, provides the greatest opportunity for project success, and encourages the highest level of team cooperation and group problem solving. All of these benefits are critical to total project success.

KEY POINTS

The following are key points to remember about minimizing risk through creative contracting:

- The decision on what contracting approach to take is the riskiest one for the organization because it has the greatest impact on cost and schedule of any decision made during the delivery process.
- The construction-manager-at-risk approach is cost competitive because more than 90 percent of the construction cost is competitively bid out.
- Choose an approach that has the best chance of creating a team environment because such an environment encourages project success.
- Select the construction manager and team carefully because the construction phase is the riskiest of all phases.