

Risk Management and Project Delivery Strategies

Risk is inherent in construction and must be properly analyzed and mitigated to ensure the success of your project. In this article we discuss the methodologies and advantages of several methods of assigning contractual responsibility and performing risk management for a construction project.

Risk is, in short, anything that can go wrong. This can include:

- Development risk- funding, entitlement, approvals to actually perform the project.
- Financial risks-cost overruns due to uncontrolled change orders or unstable market pricing.
- Unforeseen conditions- unidentified subsurface conditions, hazardous materials or unknown conditions discovered during renovations.
- Disputes- deriving from misunderstandings, poor scope or contractual documentation, or unrealistic expectations.
- Schedule- if it's over schedule it usually means it's over budget.
- Quality- potential for design or construction defects.
- Accidents or mistakes- responsibility for correction, insurance disputes.

Choose your Project Delivery Model based on assessment of the risks and allocate the risks to that party best able to evaluate, control, manage and assume the risk. Proper allocation of risk will yield a project that is less adversarial, with fewer surprises, cost impacts, and completed in a timely manner. Following is a brief sketch of the predominant project delivery systems and their pros and cons.

Lump sum Contract. In a Lump Sum Contract the contractor agrees to perform the work for a fixed amount and assumes most of the risk. This project model works best with low risk projects such as new building, known conditions, standardized construction or commercial core-and shell construction. Because the contractor is basing his bid upon the project drawings and specifications, this method is only as good as the documents. The scope of work needs to be clearly defined because any omissions or mistakes in those documents can subject the Owner to expensive change orders over which the Owner has less negotiating control. In this model the contractor assumes the risk to build what is clearly documented in his contract, and the Owner assumes the risk for any change after the contract is executed.

Time and Materials. In this model the Owner accepts most of the risk in exchange for a lower contractor fee. The scope of the work and all change orders are performed at pre-negotiated hourly rates and markups. This method works well when there are many unknown conditions, eliminating the need for the contractor to include a huge contingency.

Time and Materials to a Guaranteed Maximum Price (GMP). This model is a hybrid between the two extremes of lump sum and time and materials, and often spreads the risk fairly between the

Owner and contractor. Typically early in preconstruction, a Request for Proposal (RFP) is generated to contractors who provide a quote based on the schematic drawing package including their fees and general conditions. Often the contractor will provide preconstruction estimating at a reduced or favorable fee in return for the negotiated contract. The Owner selects the contractor based on competitive fee proposals, references, and relevant experience. Once the contractor is selected, the design team and contractor integrate all aspects of the project to determine constructability, prepare cost estimates, and get each party on track early in the process.

Prior to construction, bids are gathered by the general contractor from all subcontractors, maintaining competition both at the general and subcontractor levels. The beauty of this model is that the Owner and project team have 100% access to all documents including actual subcontractor bids, and therefore know what is included and what is not. They have the power to accept subcontractor bids based on their own criteria of quality and risk management, unfiltered through a lump sum contractor's financial agenda, thus providing the Owner more control. New construction and complicated renovation projects often work well with this type of contract because the project team works closely together with full access to information to solve problems quickly.

Design/Build. This method distills the project delivery process into one entity: the design/builder, combining both the design aspect and construction services into a single source of responsibility. Typically a large general contractor either has in-house design capacity or teams up with architect/engineers to provide a GMP to fulfill the Owner's program. This model works well and is most efficient when the Owner is experienced and has a well-articulated and clearly defined program.

Many of these processes work best with an experienced construction manager to objectively analyze and manage the architects, engineers and contractors. Educating the Owner on the subtleties of risk management and various project delivery systems is often the first task to be performed. The higher the risk, the more integrated the team needs to be. In addition, there are important contract and insurance language issues that must assign risk and responsibility fairly. Throughout any negotiated contract method, contractors have a lot of opportunity to confuse things by increasing contingency and adding unnecessary line item "plug" numbers. An experienced construction manager will lead the Owner through the quagmire of design and construction, and typically earns his own fee or more through achieving cost savings, reduced risk and/or higher quality.

Owners must look carefully and honestly at their own experience and in-house capabilities and at their project to determine if they have the capability to manage this process and minimize their risks. Consult with a qualified construction manager to help determine the best project model to accomplish your goals at an acceptable risk.

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