

MOCA Systems

Project Management Insights

Effective Contingency Management

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SUMMARY

The definition of a contingency plan is *a plan devised for a specific situation when things could go wrong. Contingency plans are often devised by governments or businesses who want to be prepared for anything that could happen.* As is true within the design and construction industry, the use of contingency is a powerful tool that owners and project managers can use to deliver a project on budget, on time and with fewer claims. This tool allows Owners to be truly prepared for anything that could happen. However, to be successful one must become knowledgeable of the three contingencies: (1) Owner's contingency, (2) Construction contingency, and (3) Design contingency. The purpose of this document is to help Owners recognize the importance of the three contingencies and decide how best to implement them on their projects. Only through understanding the effects of each contingency will Owners be able to make informed decisions, develop a plan of action and adhere to their successful plan.

THE OWNER'S CONTINGENCY

There is no such thing as a "one-size-fits-all" amount for the Owner's contingency. Of critical importance to the Owner's contingency is the need to account for risk. Risk is created when some aspects of the project are unknown or when certain project elements are likely to cause concern. Applying a standard amount to individual projects can lead to cost overruns, accusations, and litigation. It is highly recommended that Owners develop an internal process to evaluate project contingency needs. It is important to adequately establish an allowance of the right size, neither too low nor too high.

It is nearly impossible to produce a *perfect* set of construction documents, leaving room for errors and omissions. Frankly, it is amazing how few errors and omissions are in any given set of documents. Most errors and omissions amount to less than 5 percent of a project's budget. An Owner's program inevitably changes, if only slightly, during the life of a project, and changes or modifications to the scope of work occur in response to internal programmatic changes. The contingency is one way to prepare for changes in scope or errors and omissions.

A case in point: The Utah State Capitol Building

The level of risk depends on the number of unknowns when the project is budgeted and/or any project-specific issues, such as the prospect of political entanglements, as noted in the Utah State Capitol Building project.

In this case, the development of the Owner's contingency was based on the following analysis: (1) the users' (the state legislature and the executive branch) needs and (2) the associated risk the users' would impact or change the project program during design and construction. To address the associated risk, the Owner developed "Project Definition Documents" that clearly defined the project scope. Based on associated use risk of program modification and the users' complete buy-in to the design documents, the owner determined that a 3 percent contingency was adequate. During the development of the "Project Definition Documents" selective demolition was performed and this activity uncovered many unknown conditions within the Capitol. This too reduced the associated risk and allowed the owner to only require an additional 2 percent contingency to account for unknown conditions risk. The owner added 1 percent to account for possible political factors. The total Owner's contingency was 6 percent (3 percent possible scope changes + 2 percent unknown risks + 1 percent political risk).

Next steps: Good contingency management

Once the Owner determines the contingency, the next step is to manage it appropriately. All three parties—Owner/Owner Representative, Contractor, and Architect—may view the contingency differently, causing management concerns. These issues can be limited if all parties understand the purpose of the contingency and how it relates to their respective roles in the project.

Contingency funds are to be used, first, to complete the scope or deal with unknown conditions. Many Owners make the mistake of adding scope with their contingency. Architects should make sure the documents are as complete as possible and understand that the contingency is not a method for addressing late design decisions.

The Owner's primary management risk is during construction. Once the construction contract is signed and the work begins, the creation of change orders is the most contentious act on any construction project. This is where hurt feelings develop and possibly litigations. Owner contingency not managed properly during construction can result in cost overruns and unnecessary losses.

One management strategy that should be determined by the Owner is whether the contractor earns a fee on change orders? When a Contractor receives a fee on a change-order equal to or less than the fee percentage they are earning for the project, they have little or no incentive to scrutinize the subcontractor's change orders. It is difficult for anyone but the Contractor to determine the price of a change order. Allowing the Contractor to receive a fee on change orders places the most honorable of contractors in a compromising position. The only time a fee should be paid on a change order to a CM or Contractor is when there is a real and tangible change to their work which seldom occurs. Change orders which include a Contractors mark up can erode the contingency a little at a time unless the Owner takes appropriate steps to protect the Owners Contingency.

Documenting the change-order process

The Owner should establish a process to monitor the Contractor to ensure that each change order is properly reviewed. A Proposed Change Order (PCO) is a way to document this process. A PCO gives everyone a chance to review the change request before it becomes an official request. The PCO should state that all affected subcontractors have reviewed the document. Once signed, the change-order amount is the only cost associated with that specific work. No additional cost can be presented to the Owner. If there are additional costs which were not agreed then the additional cost becomes the responsibility of the Contractor. To which the contractor can use the contractor's contingency but should not be allowed to use the owner's contingency.

A Construction Change Directive (CCD) can be used when time is critical, the team knows the change will occur, and it is just a matter of determining the cost. This process should be priced as if it were a PCO and recorded in a PCO log.

THE CONSTRUCTION CONTINGENCY

It is not unusual for a contractor to move a wall or an opening or to otherwise modify his plans for a host of reasons. The construction contingency allows for this type of flexibility, and the Owner should not view it as lost cost, but instead as a tool to complete the project within the budget. The use of a contingency for the Contractor's needs varies with the type of delivery method.

Design-bid-build. The construction contingency is very difficult to manage in the design-bid-build process. In fact, it is nearly impossible to manage with full control, due in part to the bidding process. The Contractor who makes the most mistakes in the bidding process is typically low and may or may not have held onto enough contingency to complete the project. Therefore, the Owners' contingency may be higher to account for the various construction issues associated with design-bid-build. Another way to better handle this situation is to insert a contingency amount into the bid documents or tell the bidders in the bid documents that a contingency will be negotiated at the time of award.

Design-build. Depending upon how the design-build delivery is organized, the contingency can be negotiated with the Contractor as a percentage of the work or as a lump sum. Design-build contingency structures depend on the Contractor selection. Whether based on a bid or on a Guaranteed Maximum Price (GMP) determined during a qualifications-based selection (QBS) process. When determining a contingency for the Contractor, the Owner should consider the project's level of risk. A range of 5 percent to 10 percent is common, based on the level of risk, difficulty, and complexity the Contractor will face. The Contractor should have full control of the contingency and should be able to use as needed. In addition, when setting up the contingency there should be a clear statement stating any unused construction contingency should be returned to the Owner. Proper management requires the Contractor to give the Owner a quarterly report on how much of the contingency has been used and for what purpose. This level of

accountability allows all parties to understand what is happening during the construction process, especially in a public project.

CM/GC or CM at Risk. The CM and/or General Contractor (CM/GC) delivery methods are flexible and provide an excellent opportunity to work with the Contractor to deal with a contingency. The contingency can be established in a number of ways. A CM and/or GC are typically selected using a QBS selection process involving a fee-based proposal. It can also include submittal of a management plan, schedule, and general conditions. The Owner can request that the management plan include a budget estimate for the project; within the budget estimate, the Owner can stipulate a healthy contingency amount based on risk assessment, communication with the Contractor, and/or looking at similar projects within the industry.

Any remaining contingency at the end of the project is the Owner's, not the Contractor's. This gives the Contractor incentive to use the contingency responsibly. The Owner's contract should require periodic reviews of the contingency to evaluate levels of risk. As the risk on the project diminishes so should the contingency. The Owner contract should stipulate that the contingency and the risk shall be adjusted through the use of a contingency release process. The process releases the contractor's contingency back to the Owner as the Contractor's risk is reduced due to project buyout and/or completion of the work. This should be a mutually agreed-upon concept between the Owner and the Contractor. The Owner and CM/GC should identify project construction milestones for review of contingency and risk. Following the review the release of contingency should be agreed to by both parties. It makes little to no sense for the Contractor to hold more contingency than is required by the current level of risk at any point during the project. The use of this management tool— the release of unused contingency funds—should be spelled out clearly in the construction contract and understood by both parties.

DESIGN CONTINGENCY

The design contingency is an additional amount that the Owner holds for the Architect to ensure that all desired scope and quality is covered by the design. If it is not used it reverts to the Owner. The design contingency amount usually ranges from 5 percent to 10 percent of the overall construction cost. The Owner should include this cost directly in the project budget as the "Design Contingency".

As the project evolves, the contingency is drawn upon by the Owner and added to the project. This should be a process of checks and balances in which both the Owner and Architect work together to determine when and how much to use the contingency. It is not the Architect's contingency it is the Owner's, and the Owner is the one who decides when and how much to use it.

The design contingency should not be used to accomplish the original scope of the project. The Owner's contingency should be used to accomplish the original scope of the project.

In general, the design contingency should be used:

- To resolve unforeseen issues during the initial period of design
- To provide balance between the scope and initial budget if problems occur, thus eliminating “cost cutting” that can reduce both the scope and the quality of the project
- To enhance the project as recommended by the Architect and agreed upon by the owner during the design phase to eliminate “scope creep”

Cost estimating is more of an art than a science. Seek advice, when needed, from a cost consultant or CMA during the programming and design phase.

After the design is finalized and as the Architect is creating construction documents, if any project pricing issues arise, the Owner should use an outside estimator or CMA to assist the architect in valuing the cost of the work. During this phase, the design contingency should correct any budget deficiencies or unknowns—again, only with the Owner’s approval.

Once the documents are complete, use of the design contingency will vary by delivery method.

Design-bid-build. The remaining contingency should revert to the owner to cover changes in the work that the Contractor will identify. It can be used during the bidding phase to allow the Architect flexibility in review and approval of submittals as well to accommodate for changes or problems identified in the documents by the bidders.

Design-build. If the design contingency is not fully used, it can either be returned to the Owner to be used in managing the owner’s contingency or can be transferred (by contract) to the Contractor’s contingency for the completion of the project.

CM/GC. In CM/GC delivery, the most flexible of the three basic delivery methods, the design contingency can be extended into the construction phase. Here, the contingency should be used to give the Architect enough flexibility to work out design issues during construction.

Effective management of the design contingency

When using a design contingency, the owner should set aside approximately 20 percent of the contingency for the design phase, 30 percent for design development phase, and 50 percent or less for the construction document phase of the original amount of design contingency.

When the design contingency is managed properly, the Owner is involved in the decision making of the project and can address all project needs while also encouraging the Architect to pursue environmental design, sustainability of materials, and other intangible elements of a project. It gives the designer flexibility to explore ideas that will add value to the Owner as well as the ability to complete project scope, all within an approved budget.

A FINAL THOUGHT

The use of contingency is a powerful tool that the owner and the project manager can use to deliver a project on budget. It is critical that the project be set up from the beginning, that the budgets are established and reasonable and that the contingencies are not artificially created. Many owners shy away from the early establishment of these three contingencies because it may appear that they are inflating the cost of the overall project. However, regardless of the Architects design capabilities and/or the delivery method used issues arise. Design quality, additional space needs, change orders and so on all impact the cost of the work and all occur in each and every phase of the project. The wise and careful management of contingency from the beginning until the end of any project will result in a successful outcome.

TO LEARN MORE

To learn more about contingency management contact a [MOCA Systems](#) representative.