



# PERSPECTIVES

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## **Exposure Analysis: The Performance Bond Cost to Complete**

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## OVERVIEW

When faced with a performance bond claim, the Surety will often seek to determine its overall exposure or expected loss. Once determined, the Surety can use this information to make educated decisions as to how to address its obligations under the bond. The analysis to determine its expected loss, often called the exposure analysis, is the portion of the Surety's investigation of the claim that determines its estimated liabilities, both payment and performance, in connection with the bonded contract(s). The exposure analysis is typically comprised of:

- Performance Bond Exposure
- Payment Bond Exposure
- Non-Contractual Potential Exposure

Often, a key component to determining the performance bond exposure is estimating the cost to complete (CTC) the remaining work under the bonded contract. This white paper is intended to provide an understanding of the components and process of estimating the CTC of a bonded contract. Many contracts and bonds are structured differently and may require a unique approach to estimating the CTC. This paper will discuss the components, general processes, and best practices for use in developing a CTC estimate on a lump sum bonded commercial project for which completion bid proposals have not been received.

## PERFORMANCE BONDS

A performance bond is issued to guarantee satisfactory completion of the work required by the associated bonded contract. Bonds are different from insurance policies. One difference is that bonds — in contrast to insurance policies which involve only the insurer and the insured — involve three parties; the Surety, the Obligee, and the Principal. The Surety is the company that issues the performance bond and is sometimes referred to as the bonding company. The Principal is the entity, usually a contractor or subcontractor, that is under contract to perform the work. The Obligee is the entity for which the work is being performed. The Surety issues the performance bond on behalf of the Principal to the benefit of the Obligee. In doing so, the Surety guarantees satisfactory completion of the bonded

contract in accordance with the requirements of the contract. In the event that the Obligee finds the Principal to be in default of its contractual obligations, and makes a claim under the Performance Bond, the Surety has an obligation to act in accordance with the language of the bond and the underlying contract.

The Miller Act requires general contractors to provide performance and payment bonds for all federal government contracts in excess of \$150,000. Many state and municipal entities have similar considerations, requiring bonds on projects in excess of a certain value. While a performance bond guarantees performance of the work, payment bonds guarantee payment of the Principal's subcontractors and vendors (1). When issued together they are collectively referred to as P&P bonds. In addition to government entities, many private developers and contractors elect to require P&P bonds from a contractor or subcontractor to protect themselves in the event the contractor is unable or unwilling to perform the work or pay vendors and/or subcontractors.

The bond's value is referred to as the penal sum of the bond and is usually equal to the value of the bonded contract, which may be subject to change as the contract value is adjusted throughout the course of the project. It should be noted that performance bonds and payment bonds have a separate penal sum, each often equal to the value of the associated bonded contract. For the purpose of this paper, we will only discuss estimating the CTC associated with a performance bond. The Surety's loss, or the net amount spent on fulfilling the completion guarantee, is generally capped at the performance bond's penal sum. Typically, monies expended by the Surety on the performance of the work, via the performance bond, does not offset the penal sum of the payment bond.

(1) This assumes the subcontractor or vendor has met the conditions of the payment bond.

## THE NEED FOR, AND USES OF, THE CTC AND LOSS ESTIMATE

The CTC analysis is performed to provide the Surety with an estimate of the expected cost required to complete the

remaining work in accordance with the bonded contract. This analysis, along with additional information gathered during the investigation, is generally used by the Surety in the decision-making process when fulfilling its obligations under the performance bond. This information can also be helpful to the Surety in setting its financial reserves, dealing with its indemnitors, or addressing other aspects of a performance bond claim, and vice versa.

## RESOURCES FOR PREPARING THE CTC AND LOSS ESTIMATES

One of the initial steps in preparing a CTC estimate is to gather as much information as possible from the Obligee and the Principal. A typical request for documentation could include:

- Executed Contract and Executed Change Orders
- Drawings, Specifications, RFIs, Sketches, Addenda, and Other Contract Documents
- Pending Change Orders and Change Order / Claim Logs and Back-up Documents
- Payment Requisitions (Last Paid and Last Submitted)
- Deficiency and Non-Conformance Notices and Logs
- Principal's Accounts Payables and Accounts Receivable Reports
- Principal's Work In Place (WIP) Report
- Project Cost Report
- Project Buyout Log
- Subcontracts and Purchase Orders and Associated Change Orders
- Subcontractor and Supplier Payment Requisitions and Accounting Summaries
- Principal's Bid Estimate and Takeoff

- Baseline and Latest Approved Schedule
- Principal's Labor and Cost Projections
- Principal's General Conditions Breakdown
- Obligee's Bid Abstract
- Obligee's Claimed Impacts or Damages
- Punch Lists Associated with the Bonded Scope of Work

While not all of these documents may be available or required for a particular contract, the greater the amount of data available for analysis, the more precise and valuable the CTC estimate will be.

A site visit is often performed to verify work in place and remaining work to be completed. A site visit will also assist with validating the quality of the work in place and assessment of possible defects. In addition, it affords the opportunity to observe management personnel, logistics, and site-specific cost items, all of which may impact the CTC. Performing a CTC strictly from a review of the project records may lead to missed cost items, conditions, or scopes.

## PREPARING THE CTC

First and foremost, it is imperative to read the bond. Many bonds are different and may dictate the rights, obligations, and options of each of the parties. The bond language may impact the available revenue, the option to use the Principal to complete the project, and other variables to be considered during the Surety's decision-making process.

The first step in the CTC process is the establishment of the cutoff date. The cutoff date, or data date, is the date the CTC analysis is based on and from which the actual CTC will be incurred. This date is established with the Surety, based on the information received from the Principal and Obligee, and is determined according to the date for which the analyst has the most complete and available information. Using a cutoff date allows for a static analysis to be performed while the contract accounting and other factors that may impact the CTC estimate continue to change over time. The CTC estimate should attempt to consider all costs required to complete the project from

the cutoff date through final completion. During the CTC evaluation, insight on costs or potential costs associated with defective work, change order approvals or rejections, or other issues that have developed after the cutoff date should be considered in the CTC estimate.

The aforementioned site visit often occurs weeks or months after the cutoff date. One should be cognizant of the status of the work as of the cutoff date, not as of when the CTC is being prepared. For example, if the CTC has a cut-off date of June 30th, the CTC would consider the remaining work as of June 30th. If the site visit occurs in August, two months of work may have progressed since the cutoff date. Estimating the remaining work, based on the physical work in place, as of the date of the walk-through (i.e., August) could result in two months of work not being accounted for in the CTC. This would result in an understated CTC estimate.

Each project and circumstance is unique, and a combination of methods may be used to develop the best CTC estimate possible. In some cases, the Principal may provide an estimated CTC that can be used as a baseline for developing the Surety's CTC estimate. In this instance the analyst reviews the Principal's calculations versus the remaining bonded scope and adjusts as necessary. This could include direct adjustments to the Principal's estimate (i.e., productivity, material costs, quantities, etc.) and/or additional cost items to account for issues or factors the Principal may not have considered. In other cases, the CTC analysis may require a completely independent takeoff and estimate to be performed by the analyst.

The key to CTC estimates is understanding the bonded scope of work and being mindful of factors that could affect anticipated productivity and durations such as seasonal work, phasing of work, labor and material market trends, logistics, and local geography.

The CTC estimate must consider all costs expected to be incurred to facilitate completion of the bonded scope from the cutoff date to completion. The CTC estimate generally includes two major categories of cost, direct and indirect.

## CTC ESTIMATE – DIRECT COSTS

Whether the Principal is a general contractor responsible for the construction of the project as a whole or a subcontractor

responsible for a particular scope, it is important to understand what work is and what work is not included in the Principal's bonded scope. Understanding the scope of work generally involves a comprehensive review of the contract, specifications, plans, change orders and change order requests, RFIs, and other contract documents that may have impacts on the required scope. Once the scope of work is understood, the next step is understanding what scope(s) the Principal intends to subcontract to a specialty contractor and what scope(s), if any, the Principal intends to self-perform.

### CTC Estimate for Subcontracted Scopes of Work

Scopes for which the Principal has already issued a subcontract or purchase order, collectively referred to as a commitment, to a subcontractor or vendor to perform are presumably the least difficult to analyze. The key is confirming that the scope of the commitment is consistent with that of the Principal's associated bonded scope of work. If the scopes are consistent, then the remaining balance of the commitment value can be used in the CTC estimate for the associated scope of work. If the scope of the commitment is not inclusive of the bonded scope, the costs associated with the scope beyond the commitment should be estimated and added to the CTC estimate to eliminate the scope discrepancy. In addition to this scope leveling, the CTC estimate should consider pending subcontractor or vendor change orders, claims, and back-charges, as well as an evaluation of the subcontractor or vendor's ability and willingness to complete the remaining scope of work. If the subcontractor or vendor's ability or willingness to perform is in question, costs for supplementation and/or replacement should be considered.

### CTC Estimate for Self-Performed Scopes of Work

Scopes of work for which the Principal anticipates to self-perform is commonly the most difficult to analyze. Typically, these costs are first estimated under the assumption that the Principal will complete the bonded scope and must consider all of the labor, material, and equipment required to do so. These costs can be estimated in a variety of ways, which are impacted by the specific project conditions and

available data. Depending on the information available and type of work, an independent takeoff and estimate may need to be performed. The Principal's historical productivity data can be utilized to project future performance in what is referred to as a measured-mile approach. This approach works well with work that is repetitive in nature such that previous performance and production can be expected to remain approximately the same for the balance to complete, such as the construction of roadways or railway tracks. However, one must be aware of changes in conditions or scope from what was previously performed and make justified adjustments to the projected productivity rates as required. For example, in vertical construction productivity typically decreases as the structure's height is increased due to time lost transporting materials and manpower to higher elevations. If made available by the Obligee, bids submitted by competing contractors can assist with better understanding the potential costs associated with various scopes of self-performed work.

## CTC Estimate for Scope Gaps

A scope gap refers to material, equipment, labor, or any other requirement of the bonded scope for which the Principal does not intend to self-perform and no commitment exists. Scope gaps can be due to the Principal having not completed their buyout, a discrepancy or oversight in the Principal's existing commitments, or a misinterpretation of the contract documents where the Principal is unaware of the requirement. Scope gaps can occur in the original base scope, or in change orders issued after contract award. It is critical that the reviewer understands the complete bonded scope of work, including any changes after contract award.

Determining if there are scope gaps, which need to be addressed in the CTC, is a two-step process. The first step is understanding the complete bonded scope of work. The second step is to evaluate the Principal's commitments and intended self-performed scope(s) to determine if any gaps exist. Reviewing the included, and often more importantly the excluded, scope(s) of each commitment is critical to this review. If a commitment does not include or explicitly excludes scope that is required by the bonded contract, and that scope is not included in another commitment or intended to be self-performed by the Principal, then a scope gap exists, which must be addressed in the CTC estimate. The type of scope gap identified will determine how the CTC estimate can be adjusted. It could result in additional

direct labor for the Principal, a change order to an existing commitment, or new subcontractor(s) or vendor(s) may be needed. The scope gap may require a combination of these options to adequately address the scope gap in the CTC estimate.

## Other Costs and Considerations

Scopes of work that the Principal is unable to self-perform and have not been subcontracted or bought out may require independent estimation or quotes. This can become particularly complicated when estimating costs of proprietary equipment or materials, commitment exclusions, extended warranties, and potential warranty work. Potential costs associated with warranty exposure are often estimated as a variable percentage of the cost of installation, which varies widely based on the associated scope and risk factors. It may be beneficial to include a contingency amount in the CTC estimate in anticipation of unforeseen or difficult to price conditions and costs to address potentially defective work in place. Contingencies can be included as a fixed amount or some percentage of the estimated direct costs based on the associated scope and risk factors. While estimating the CTC, often the Surety has not yet determined whether the performance demand from the Obligee is valid, and/or which option it will pursue under the bond if the performance demand is deemed valid. The Surety's options and final decision as to which option it will pursue will likely impact the CTC analysis. The CTC estimate may need to account for multiple possible completion scenarios and/or be adjusted to reflect the Surety's final decision.

## CTC ESTIMATE – INDIRECT COSTS

While direct costs represent the costs associated with the physical installation and completion of the bonded scope of work, indirect costs represent the costs associated with managing and facilitating the installation. Indirect costs fall under three categories: general conditions and general requirements, home office overhead, and profit.

## CTC Estimate for General Conditions and General Requirements

This broad category of project specific costs required for the proper prosecution of the bonded scope, but not directly attributed to the installation of the work itself, are commonly referred to as jobsite or project-specific overhead. These costs vary widely by project and by trade with a general contractor's project-specific overhead costs typically being significantly higher than a specialty subcontractor. These costs can include, but are not limited to, the following:

- Field Offices / Trailers and Storage Containers
- Field Office Furnishings / Consumables (Phone / Data, Copiers, Paper, Water, Etc.)
- Field Supervision (Superintendents, Project Management, Safety Officers, Etc.)
- Project Support Labor
- Project Administration (Cost Accountants, Jobsite Office Manager, Etc.)
- Temporary Utilities and Facilities (Power, Water, Toilets, Heat, Shanties, Etc.)
- Stormwater Pollution Prevention Plan (SWPPP), Dust Control, and Track-Out
- Small Tools and Consumables
- Mobilization and Demobilization
- Permits and Licensing

Estimating the costs associated with the project-specific overhead can be done similarly to the self-performed direct costs. Depending on the information made available, projecting historical cost data or performing an independent estimation of these costs, or a combination of the two, may be used. It is important to have a good understanding of the requirements of the bonded project as specific project requirements may need to be taken into consideration; e.g., provisions for providing temporary office space for the Obligee or contributing to

a composite cleanup crew. Generally, these costs do not vary greatly on a month-to-month basis. However, project sequencing should be considered for significant changes in available work or staffing requirements, which may impact the associated project-specific overhead costs. Potential project delays and the anticipated completion duration must also be considered in the CTC estimate.

## CTC Estimate for Home Office Overhead (HOO)

HOO represents the cost for the Principal's indirect administration of the projects and overall operations, which are generally shared over multiple projects. HOO costs can include, but are not limited to, the following:

- Rentals and Leases
- Services and Utilities
- Warehousing and Storage
- Staffing Costs (Accounting, Administrative, Executive, Etc.)
- Staffing Benefits (PTO, Holiday Pay, Etc.)
- Legal Costs
- Insurance
- Equipment Depreciation
- Taxes
- Office Equipment and Supplies

Depending on the information made available, estimating HOO can be difficult to perform, but is often carried as a percentage of the bonded contract value. The percentage will vary depending on the Principal's size and project portfolio. A common method to estimate a project's HOO allocation is to prorate the Principal's total operational costs over the entire project portfolio. This method is based on the Basic Eichleay Formula, which is sometimes used to evaluate HOO costs in construction claims. The Surety may or may not elect to include HOO costs in its decision-

making process; therefore, it is important to separately identify these potential costs and discuss with the Surety how or if it should be included in the CTC estimate.

## CTC Estimate for Profit

Profit represents the financial benefit a contractor receives for completing a contracted scope of work. The profit margin is the amount by which revenue from the contract exceeds the CTC the associated work. Profit margins vary widely based on the industry, location, and current market conditions. Profit is generally not included in a CTC estimate when the Principal is expected to complete the bonded scope of work; however, profit should be included in the CTC estimate if a different contractor is expected to be used to complete the bonded scope of work. It is unlikely that a contractor other than the Principal used to complete the work, often referred to as the Completion Contractor, will do so without the opportunity to earn profit.

## CONCLUSION

The CTC estimate can be an effective tool available to the Surety as it investigates performance bond demands and its respective exposure. The estimate itself is only as effective as the information used in its development. Thus, the gathering of as much information as possible from the Principal and the Obligee is important, as is the diligence to verify the accuracy of the information and documentation provided, as well as performance of the exposure analysis. After the establishment of an agreed upon cut-off date, the CTC includes estimates of the direct and indirect costs required to complete the bonded contract. In analyzing these costs, consideration should be given to the work performed by subcontractors, scopes of work not yet bought out, materials from vendors, the work of the Principal, and the time required to complete the bonded obligation. Indirect costs such as insurances, project facilities, temporary utilities, and other costs not specifically incorporated into the project should be analyzed and incorporated into the estimate as necessary. Finally, HOO and anticipated profit should also be considered in the estimate. Once all of these costs are compiled, the CTC is available to the Surety as it navigates through the complexities of a performance bond claim.

## ABOUT THE AUTHORS

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