

# Construction Executive

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## Breaking Down the Work-in-Process Schedule

By Megan Moriarty and Robert Mercado | Thursday, September 3, 2020

The financial statements of construction contractors are based primarily on estimates. The crucial question when analyzing the statements is how reliable those estimates prove to be. In an effort to provide such reliability, a contractor's work-in-process (WIP) schedule should be prudently examined, as the WIP narrates the health of these statements.

While the format of the WIP can vary contractor to contractor, it provides information on jobs from inception to date, in addition to as of and for the current reporting period. The following is an example of a work-in-process schedule

Description	Total Contract			From Inception Through December 31, 20XX					At December 31, 20XX		At December 31, 20XX		
	Total Contract Price	Total Estimated Cost of Revenues	Estimated Gross Profit	JTD Contract Revenue	JTD Costs of Revenues Earned	Accrued Loss	JTD Gross Profit	JTD Billings To Date	Costs and Estimated Earnings In Excess of billings	Billings in Excess of Estimated Earnings	Backlog	Estimated Costs to Complete	Percent Complete
Project A	1,500,000	1,250,000	250,000	540,000	450,000	-	90,000	600,000	-	60,000	960,000	800,000	36.00%
Project B	1,100,000	1,250,000	(150,000)	352,000	400,000	102,000	(150,000)	350,000	2,000	-	748,000	850,000	32.00%
Project C	950,000	800,000	150,000	570,000	480,000	-	90,000	550,000	20,000	-	380,000	320,000	60.00%
	3,550,000	3,300,000	250,000	1,462,000	1,330,000	102,000	30,000	1,500,000	22,000	60,000	2,088,000	1,970,000	

## UNDERSTANDING THE WIP

Before any analysis can take place, it's important to understand the various components of the WIP. The following provides details on each WIP component.

### Total Contract Price

Total contract price is not as simple a concept as it sounds. To the contrary, the total contract price can be comprised of multiple items. These items include the following.

Original contract price	Amount of the original contract.
Approve change orders	Changes that have been approved by the customer to be included in the contract.
Unapproved change orders	Amounts expected to be recovered on change orders approved for scope but not approved for price.
Liquidated damages ("LD") and back charges from customer	Reduction of the contract price related to any potential LD based on the contract and any back charges for faulty workmanship.

## **Total Estimated Cost of Revenue Earned (ERC)**

The ERC is one of the most important items on the WIP. It is also the most difficult to calculate. If this amount is calculated incorrectly, it could compromise the contractor's profitability. ERC is the sum of all anticipated costs that will be incurred on the project from inception through completion. It includes all direct contract costs along with the indirect costs that will be allocated to the project. The ERC should be reviewed on a regular basis, usually monthly, to ensure that the contract is progressing as projected.

## **Job-to-Date Contract Revenue Earned (RE)**

The percentage of completion method (POC) is a method to calculate the revenue earned on a project. Most contractors use the cost-to-cost method of POC to calculate the RE. The cost-to-cost method compares the job-to-date cost of revenues earned divided into the ERC, which calculates the percent complete based on cost incurred. This percent complete amount is then multiplied by the total contract price. As an example from above, Project A incurred \$450,000 of JTD cost of revenue, earned which is divided into the ERC of \$1,250,000. This equates to 36% complete. The contract price is multiplied by the 36% complete to come to a RE of \$540,000. This number represents the RE based on POC.

## **Job-to-Date Cost of Revenue Earned (CRE)**

All costs incurred, whether direct or indirect, should be reported on each project. Direct costs can include materials, direct labor, subcontracting and equipment rental. Indirect costs are allocated to a project based on a systematic approach, such as a percentage of direct labor. Indirect costs can include project management, indirect labor (i.e., warehouse labor), depreciation, auto and truck, and repairs and maintenance. It is imperative that costs comprising a project are relative to the cost included in the ERC. Costs charged to a project that are not included in the ERC may cause the RE and gross profit reported to be incorrect.

## **Accrued Loss**

When calculating POC, the job-to-date gross profit recognized is based on the percent complete of the project. If a loss is anticipated, the amount of the loss that would be earned is based on the percent complete. As an example from above, Project B is expected to have a \$150,000 loss. Based on cost incurred, Project B is 32% complete. The loss earned as of that moment would only be \$48,000. Since Generally Accepted Accounting Principles require that the entire loss be

earned as of the moment a loss is anticipated, this would result in a shortfall of \$102,000. An accrued loss is added to the project in order to account for the additional loss not captured through POC.

### **Job-to-Date Billing**

In most industries, the amount billed to a customer is considered revenue earned. However, for contractors, revenue earned is based on POC, not on the amount billed. The job-to-date billing amount will be the total requisitioned by the customer, including retainage held (also known as the “total complete and stored to date”) on the requisition.

### **Estimated Cost to Complete**

This is calculated by subtracting the CRE from the ERC. As the name suggests, this amount represents the balance of cost left to complete on a project.

### **Costs and Estimated Earnings in Excess of Billings (CIE)**

CIE, also referred to as underbillings, is considered a current asset. CIE is the amount of RE in excess of the amount billed on a project. CIE could represent poor billing practices, an inability to bill for work performed due to milestone not reached, incurred cost on an unapproved change order deemed unbillable or an overstatement of estimated gross profit on the project. Underbillings are not normal practice and should be considered a risk to the contractor. All significant underbillings should be investigated for origin and accuracy.

### **Billings in Excess of Costs and Estimated Earnings (BIE)**

BIE, also referred to as overbillings, is considered a current liability. BIE is the amount of billing in excess of the RE on a project. BIE represents good billing practice, representing potential front-end loading of profit in earlier project stages based on the schedule of values, or deferred profit.

## **RATIO ANALYSIS**

The following are several ratios relating to the WIP schedule. Systematic analysis of these ratios will ensure that financial reporting is accurate based on project estimates.

### **Contract Gain/Fade**

Contractors should be analyzing profitability on a job-by-job basis to ensure that the anticipated gross profit at completion remains close to the original estimate. Contractors should watch for projects that have a fade of the expected gross profit. If gross profit expected at completion begins to decrease, it is important to strategize priorities in an effort to restore the original estimated profit.

### **Underbillings-to-Equity**

The underbillings-to-equity ratio is calculated as a percentage of CIE divided into stockholder's equity. <sup>[1]</sup><sub>[SEP]</sub>It is the percentage of the contractor's net worth represented by work performed but not yet billed. A ratio in excess of 20% is considered unusual. The higher the percentage, the greater a contractor's equity is, based on an estimate of project cost incurred that could not be billed to a customer.

### **Underbillings-to-Working Capital**

Underbillings-to-working capital is calculated as a percentage of CIE divided into working capital. This ratio represents the portion of the contractor's working capital (the difference between current assets and current liabilities) comprised of underbillings. A ratio in excess of 25% is considered unusual. The higher the percentage, the more a contractor's working capital is based on an estimate of cost incurred on a project that could not be billed to a customer.

### **Overbillings-to-Cash**

This is calculated as of percentage of BIE divided into cash and cash equivalents. The amount of cash in the bank represents a ratio of BIE. All overbilled amounts should be represented by cash in the bank. Therefore, an acceptable ratio of cash to overbillings is generally 1 or higher. The concern related to this ratio is overbilling on one project to cover

the cost, or worse, the loss incurred on another project. If cash is borrowed for another project, the contractor may not have the cash to pay expenses on the overbilled project.

### **Total Job Borrow**

This is the total CIE from total BIE. This indicates the net percentage-of-completion adjustment. A positive number represents a net overbilling. This indicates that the contractor has bid a job where the customer will assist the contractor in financing. A negative number represents a net underbilling, which is considered unusual. Net underbillings may indicate poor billing or bidding practices or may also indicate overly aggressive profitability forecasts.

### **Total Backlog**

Total backlog is the total contract price on open projects less RE on the open projects. This analysis assists the contractor in determining if additional future work is needed to maintain current volume.

### **Total Backlog Gross Profit**

Having a healthy backlog is important only if it carries a profit. The backlog gross profit is calculated by comparing the estimated total gross profit on open projects less the job-to-date gross profit. A good rule of thumb for contractors is that the backlog gross profit should cover at least 50% of the contractor's general and administrative expenses for the following year. If the backlog is below this threshold, the contractor could have a difficult time meeting the financial requirements of the coming year.

## **CONCLUSION**

An in-depth and clear understanding of the WIP components is an essential tool to ensure any potential detriments are addressed immediately, hence reducing any potentially negative impact on a contractor's financial statements.



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