COST CONTROL PROCESSES

Introduction

The main aim of the report is to elaborate the cost control process for a construction project. To this end, it will explore the operating cycle, budgets, earned value measurement system and strategies that will be adopted to address a possible cost overrun dilemma. The cost control process will entail cost monitoring, data recording and data analysis, which will in turn enable the management to take corrective action before it is too late (Kerzner, 2013). To achieve this, all the personnel incurring costs in the organization will be involved in the cost control process as opposed to merely involving the personnel in the project office.

Operating Cycle

The construction project is expected to span over a three month period during which all the project deliverables will be met.

Budgets

Two budgets will be used to determine the cost of executing the project deliverables, the estimate and the project budget (Uher & Loosemore, 2003). The estimate is a static document that reflects the quantity of inputs that will be required for the project and their prices before the commencement of the project (bid time). The actual project budget will on the other hand continuously evolve throughout the projects lifecycle (AICCCC, 2005). This budget reflects the actual scope of the project at the site and the actual quantities of inputs that will be used for the construction project and a standard productivity rate. Unlike the estimate, the project budget is not static because it includes extra work orders and change orders that will result in a significant alteration of quantities and costs. The project budget will therefore reflect the actual quantities utilized and a standard unit rate for each work activity.

In order to determine the cost effectiveness of the project, the project budget will be compared to the estimate (DelPico, 2013). This comparison will `specifically be made in the project cost summary report, which will highlight the discrepancies between the estimated quantities, work hours and the actual and projected costs.

Earned Value Measurement System

The earned value measurement system will mainly constitute the earned work hour, which can be defined as the budgeted work hours earned for the quantity placed using the budgeted standard. This will be calculated by finding the product of the quantities placed and the budgeted standard work hours per unit rate (whr per unit) as illustrated below

The budgeted quantities will be computed by an individual within the organization with the capacity to determine the quantities for each work item from the construction blueprints. This is because these quantities will reflect the actual project being built. It is also imperative that the budgeted quantity takeoffs for each work item are tabulated elaborately so that the quantity can easily be identified. The quantity tabulation form will particularly identify the takeoff by revision numbers, drawing number, equipment item numbers, area numbers, system numbers and evaluation. These quantity tabulation sheets are used by field officers to keep track of the work completed.

Cost Control Reports

Three cost control reports will be utilized during the execution of the project, the labor cost report, the earned work hour report and the aforementioned project cost summary report (AICCCC, 2005). These reports will mainly be used to compare the budgeted costs and actual expenditures by the cost code assigned to each of the resources that will be needed for the project as outlined in the work breakdown structure.

Earned Work Hour Report

This report will be used by the project manager to monitor the productivity of the individual work activities. It will particularly be used to compare the rate of the budgeted work hours per unit to the rate of the actual work hours per unit either daily or weekly for each activity. The contractor’s for daily outputs and crew sizes will be used to determine the budgeted work hour per unit rate for all the work items. The standard unit rate may or may not be incorporated in the estimate. However, for the sake of productivity, it will be imperative that all the superintendents are compared to the same rate. In order to determine the standard unit rate, the base year, daily output for each activity and standard crew size will have to be established. Even though the budgeted standard will remain fixed throughout the project, it might be adjusted for each job due to the location, working conditions and trade agreements. The Earned Work Hour Report will mainly be used to facilitate the comparison between the budgeted work hours and actual work hours expended and the projection of the final work hours for the individual activities. The contents of this report are highlighted below:

1. Cost code: Unique code assigned to each activity
2. Activity Description: Short description of the resources that will be required for each activity
3. Quantities: The quantities of the resources including:
	1. Budgeted quantities: Obtained from the estimate ledger
	2. Weekly Quantities: Cumulative quantities placed during the week. Obtained from the Inplace Quantity Report
	3. To date quantities: Cumulative quantities placed throughout the scope of the project.

The Earned Work Hour Report will also contain a unit column for the above quantities

1. Expended hours: The number of hours spent to execute each activity including:
	1. Weekly hours: Cumulative hours expended per week. Obtained from the Weekly Labour Distribution
	2. To date hours: Cumulative hours expended throughout the scope of the project.

1. Earned Work hours:
	1. Earned work hours: Product of the quantities that have been placed to date and the budgeted work hour unit rate.
	2. Budgeted work hours: Predetermined estimate of the work hours required to perform a particular activity. Obtained from the estimate Ledger.
2. Unit Work Hour Rates
	1. Budgeted Unit Work Hour Rate: Ratio of the budgeted work hours and the budgeted quantities expressed in work hours per unit.
	2. Weekly Unit Work Hour Rate: Ratio of the hours expended weekly and the weekly quantities placed.
	3. To Date Unit Work Hour Rate: Ratio of the hours expended to date and the weekly quantities placed.
3. Percentage: Percentage ratio of the total earned and the budgeted:
	1. Earned Percentage
	2. Expended Percentage

1. Projected Work hours:
	1. Work hours projected at completion: Forecasted total work hours expended when the quantity estimated is 100% complete.
	2. Projected Gain (or Loss):

Labor Cost Report

The report will facilitate a comparison between the budgeted labor costs and the actual labor costs and a projection of the final cost for the individual activities. The budgeted costs are obtained from the revised estimated costs contained in the estimated ledger while the actual costs are obtained after balancing the items contained in the weekly labor distribution and the detail cost ledger (AICCCC, 2005). The Labor Cost Report is also referred to as the Equipment Cost Report because it can be used to determine the cost of equipment per unit as opposed to the labor cost per unit in cases where the construction project is equipment intensive. The contents of this report are highlighted below:

1. Cost Code: Unique code assigned to each activity
2. Activity Description: Short description of the resources that will be required for each activity
3. Budgeted quantities: Computed from the plans and represent the actual quantities that will be placed to facilitate the successful completion of the project. These quantities are obtained from the Estimate Ledger
4. Weekly quantities: Cumulative quantities that have been placed throughout the week. Obtained from the Inplace Quantity Report
5. To Date quantities: Cumulative quantities that have been place throughout the scope of the project.
6. Expended Labor Dollars
	1. Weekly Expended Labor Costs: This is the sum of the Total Premium costs and the Total Regular costs, which are found in the Weekly Labor Distribution.
	2. To Date Expended Labor Costs: Cumulative weekly labor costs expended throughout the scope of the project.
7. Total Budgeted Cost: Constitutes the original estimated labor cost plus the net amount of the approved contract change orders
8. Unit Costs
	1. Budgeted Unit Cost: Ratio of the total estimated costs of labor and the Budgeted Quantities expressed in labor cost per unit.
	2. Weekly Unit Costs
	3. To Date Unit Costs
9. Projected Labor Cost
	1. Projected Labor Costs at Completion: Forecasted total labor cost expended when
	the quantity estimated is 100% complete.
	2. Projected Gain or (Loss)

Project Cost Summary Report

This is perhaps the most important report as far as the overall project is concerned because it summarizes all the projected and actual quantities, costs and work hours for the construction project and compares them to the budget using their cost codes (AICCCC, 2005). The comparison between the projected costs and the estimated costs illustrates the most recent prediction of the overall profitability of the project. As such, this report puts the management in a position to identify specific work items that will be monitored closely in order to minimize losses. It is essentially used to keep costs under control. The values in the Project Cost Summary Report are obtained from detail cost ledgers and the budget and are transferred to the accounting ledgers.

Cost Overrun Dilemma

Some of the factors that might contribute to cost overrun dilemma include plan modifications, poor project coordination, changed conditions and problems associated with the design of the project (CSCE, 2002; Tonchia, 2008 )). As such, the project management team will pay close attention to the design phase of the project and review the designs thoroughly before the commencement of the project (Sears, et al., 2010). Additionally, the team will endeavor to contract with reliable suppliers and other key stakeholders in order to avoid shortages and unnecessary delays which might prompt the company to incur extra construction costs.

References

[AICCCC] American Institute of Constructors Constructor Certification Commission, 2005. *Associate Contractor Study Guide.*[Online]
Available at: http://cset.mnsu.edu/cm/students/aic-study-guide/level1hcostcontrol.pdf
[Accessed 8 June 2015].

[CSCE] Canadian Society for Civil Engineering, 2002. *4th Transportation Specialty Conference of the Canadian Society for Civil Engineering.*Québec, Canada , CSCE.

Charrel, P.-J. & Galarreta, D., 2007. *Project management and risk management in complex projects : studies in organizational semiotics.*Dordrecht: Springer.

DelPico, W. J., 2013. *Project control : integrating cost and schedule in construction.*Hoboken, New Jersey : John Wiley & Sons, Inc..

Kerzner, H., 2013. *Project management : a systems approach to planning, scheduling, and controlling.*11 ed. Hoboken, New Jersey : John Wiley & Sons.

Sears, S. K., Sears, G. A. & Clough, R. H., 2010. *Construction Project Management : a Practical Guide to Field Construction Management..*5 ed. New York : John Wiley & Sons, Inc..

Tonchia, S., 2008 . *Industrial project management : planning, design, and construction.*Berlin : Springer.

Uher, T. E. & Loosemore, M., 2003. *Essentials of construction project management.*Syndey : University of New South Wales Press.