CHAPTER

4

More Construction Accounting

In this chapter you will increase your understanding of construction accounting systems. You will learn to track committed costs outside the accounting system in the event your company's accounting system does not track committed costs, which will also help you understand how accounting systems track committed costs. You will learn to use committed costs to project the estimated cost and profit at completion for projects. You will also learn to calculate over- and underbillings. Finally, you will learn about the internal controls that need to be set up to protect your financial resources and what to look for in computerized construction accounting systems.

What follows are a number of topics that will round out your understanding of construction accounting. Let's begin by looking at committed costs and estimated cost at completion.

Committed Costs and Estimated Cost at Completion

To get a more accurate picture of a construction project's financial status, unbilled committed costs must be included with the invoiced costs in the job costs ledger and the estimated cost at completion needs to be projected.

Committed costs are those costs that the company has committed to pay. This occurs when the company issues a purchase order or signs a subcontract for a known amount. Often a company hires subcontractors for a major portion of a project. When the subcontractors are hired for a fixed price, the cost to complete the subcontracted work is known—barring any change orders—far in advance of the work being completed and the company receiving a bill for the work. Some accounting systems allow you to track committed costs in the job cost ledger, whereas others do not. Once a bill is received for a committed cost, it is included with the invoiced costs and tracked on the job cost ledger. If a company's accounting system does not track committed costs, unbilled committed costs must be manually combined with the job cost ledger to get an accurate

picture of the project's financial status. In this section we look at how to use a spreadsheet to combine unbilled committed costs with the costs from the job cost ledger. This will help you understand how to include committed costs and how an accounting package handles committed costs, since they handle them in a similar manner.

We also look at projecting the estimated cost at completion. As a project is completed, estimated costs become actual costs. As cost over- and underruns occur on projects the estimated cost at completion, as well as the estimate profit, change for each of the projects. Additionally, as change orders occur they further change the estimated cost at completion and profit. It is important for management to track and manage the profitability of each project.

Including committed costs and estimating the cost at completion can be done with a simple spreadsheet similar to the one shown in Figure 4-1. Each project is done on a separate spreadsheet. Let's look at how to use this spreadsheet to include the committed costs and project the cost at completion for a project.

Each cost code is entered on a separate line. The cost codes may or may not be separated by cost type—labor, materials, equipment, subcontract, and other. The cost codes are entered in Column A with the associated description entered in Column B. The original estimated cost for each cost code is entered in Column C. Typically these are the costs used to generate the estimate. The changes that need to be made—positive or negative—to the original estimate as the result of change orders are entered in Column D. The change orders may be change orders submitted to the owner or internal change orders that are used to track changes to the original budget. The total estimated cost equals the original estimate plus the change orders; therefore, Column E equals Column C plus Column D. The committed costs for each cost code are entered in Column F. Committed costs commonly include subcontract amounts and purchase orders with known costs. The costs from the job cost ledger are then divided into two types: costs that are charged against committed costs and costs that are charged against noncommitted costs. The costs charged against committed costs are entered in Column G and costs charged against noncommitted costs are entered in Column H. When setting up a company's cost codes, it is a good idea to set them up in such a manner that makes it easy to separate committed from noncom-

	A	B	C	D	E	F	G	H	I	J	K	L
1									Total		Total	
2									Committed		Estimated	
3								Non-	and Non-		Cost	Variance
4					Total		Committed	Committed	Committed	Cost	at	Over /
5			Original	Change	Estimate	Committed	Costs	Costs	Costs	to	Completion	(Under)
6	Code	Description	Estimate	Orders	(C + D)	Costs	Invoiced	Invoiced	(F + H)	Complete	(I + J)	(K - E)
7					-				-		-	-
8					-				-		-	-
9			-	-	-	-	-	-	-	-	-	

FIGURE 4-1 Committed Cost Worksheet

mitted costs. The total committed and noncommitted costs are entered in Column I and are calculated by adding the committed costs in Column F to the noncommitted costs invoiced in Column H. These costs represent the total spent plus unbilled committed costs on the project thus far. The cost to complete the work covered by each cost code is entered in Column J. The cost to complete should include any costs the company anticipates spending between now and the completion of the project that the company has not already committed to. Committed costs should not be included because they have already been included in the worksheet. The total estimated cost at completion is entered in Column K and is calculated by adding the total committed and noncommitted costs in Column I to the cost to complete in Column J. Finally the variance is entered in Column L and is calculated by subtracting the total estimate in Column E from the total estimated cost at completion in Column K. Cost overruns are represented by a positive number and cost underruns are represented by a negative number. Once all of the values for each of the cost codes have been calculated, the project totals may be calculated by totaling each of the columns. Let's see how this works.

Example 4-1: A contractor has signed a contract to pour the footing, foundation, and slab floor for a building. The contractor uses the cost codes in Figure 2-5. The original estimate for the labor to complete the footing and foundation was $8,400 and the contractor has subcontracted this work out for $8,560. The subcontractor has billed the contractor for $2,700 for this work. No additional cost commitments are expected to be made for this line item. The original estimate for concrete to complete the footings and foundation is $9,270, no costs have been committed, and the contractor has received a bill for $3,960. The contractor estimates that it will cost an additional $5,310 to purchase the remaining concrete for the footings and foundations. The original estimate for the labor to complete the slab floor is $20,000 and a $100 change order has been approved for additional work. This work will by performed by in-house crews. The work has yet to be performed and the contractor estimates that the cost to complete the work is $20,100. The original estimate for the concrete to complete the slab floor is $23,456 and a $118 change order has been approved for additional work. The work has yet to be performed, but the contractor has been given a 1% price discount for the slab concrete from the supplier, which reduces the total estimated for this item by 1%. Determine the total estimated cost at completion for the project and the variance for each cost code.

Solution: The original estimate for the labor to complete the footings and foundation is $8,400. The total estimate (Column E) for the labor to complete the footings and foundation equals the original estimate (Column C) because no change orders have been issued. Because the contractor has hired a subcontractor for this work, the committed costs (Column F) are

$8,560, of which $2,700 have been invoiced (Column G). The total committed and noncommitted costs (Column I) are calculated as follows:

Total Committed and Noncommitted Costs = $8,560 + $0 = $8,560

The total estimated cost at completion is equal to the total committed and noncommitted costs (Column I) because the estimated cost to complete (Column J) is zero. The variance (Column L) is equal to the total estimated cost at completion (Column K) less the total estimate (Column E) and is calculated as follows:

Variance = $8,560 − $8,400 = $160

This variance indicates that there is a cost overrun of $160 for this line item.

The original estimate for the concrete to complete the footings and foundation is $9,270. The total estimate (Column E) for the concrete to complete the footings and foundation equals the original estimate (Column C) because no change orders have been issued. Because no costs have been committed, the committed costs (Column F) are $0. The invoiced costs are noncommitted costs; therefore, the noncommitted costs invoiced (Column H) are $3,960. The total committed and noncommitted costs (Column I) are calculated as follows:

Total Committed and Noncommitted Costs = $0 + $3,960 = $3,960

The estimated cost to complete (Column J) is $5,310. The total estimated cost at completion (Column K) is equal to the total committed and noncommitted costs (Column I) plus the cost to complete (Column J) and is calculated as follows:

Total Estimated Cost at Completion = $3,960 + $5,310 = $9,270

Because the total estimated cost at completion is equal to the total estimate, the variance (Column L) is zero. This cost item is neither over nor under budget.

For the labor to complete the slab floor, the total estimate (Column E) equals the original estimate (Column C) plus the change orders (Column D) and is calculated as follows:

Total Estimate = $20,000 + $100 = $20,100

Because the work is being performed in-house, the costs are still unknown and are noncommitted costs. Because the costs have not occurred the noncommitted costs invoiced (Column H) is zero. The company estimates that the cost to complete (Column J) is $20,100.

The total estimated cost at completion (Column K) is equal to the total committed and noncommitted costs (Column I) plus the cost to complete (Column J) and is calculated as follows:

Total Estimated Cost at Completion = $0 + $20,100 = $20,100

Because the total estimated cost at completion is equal to the total estimate the variance is zero. This cost item is neither over nor under budget.

For the concrete to complete the slab floor, the total estimate (Column E) equals the original estimate (Column C) plus the change orders (Column D) and is calculated as follows:

$$\text{Total Estimate} = \$23{,}456 + \$118 = \$23{,}574$$

Because the work has yet to be performed and the actual quantity of concrete has not been determined, the costs are still unknown and are noncommitted costs. Because the costs have not occurred the noncommitted costs invoiced (Column H) are zero. The company has received a 1% discount from the supplier that is reflected in the estimated cost to complete and is calculated as follows:

$$\text{Estimated Cost to Complete} = \$23{,}574(1 - 1/100) = \$23{,}338$$

The total estimated cost at completion (Column K) is equal to the total committed and noncommitted costs (Column I) plus the cost to complete (Column J) and is calculated as follows:

$$\text{Total Estimated Cost at Completion} = \$0 + \$23{,}338 = \$23{,}338$$

The variance (Column L) is equal to the total estimated cost at completion (Column K) less the total estimate (Column E) and is calculated as follows:

$$\text{Variance} = \$23{,}574 - \$23{,}338 = -\$236$$

This variance indicates that there is a cost under run of $236 for this line item.

The total of each of the columns may then be summed for a project total. For the project the variance is calculated as follows:

$$\text{Variance} = \$160 + \$0 + \$0 + (-\$236) = -\$76$$

We see that the project has a projected cost savings of $76. The solution using a spreadsheet is found in Figure 4-2.

	A	B	C	D	E	F	G	H	I	J	K	L
1									Total		Total	
2									Committed		Estimated	
3								Non-	and Non-		Cost	Variance
4					Total		Committed	Committed	Committed	Cost	at	Over /
5			Original	Change	Estimate	Committed	Costs	Costs	Costs	to	Completion	(Under)
6	Code	Description	Estimate	Orders	(C + D)	Costs	Invoiced	Invoiced	(F + H)	Complete	(I + J)	(K - E)
7	3300	Footing & Found.-Labor	8,400	—	8,400	8,560	2,700	—	8,560	—	8,560	160
8	3400	Footing & Found.-Conc.	9,270	—	9,270	—	—	3,960	3,960	5,310	9,270	—
9	3500	Slab/Floor-Labor	20,000	100	20,100	—	—	—	—	20,100	20,100	—
10	3600	Slab/Floor-Conc.	23,456	118	23,574	—	—	—	—	23,338	23,338	(236)
11			61,126	218	61,344	8,560	2,700	3,960	12,520	48,748	61,268	(76)

FIGURE 4-2 Solution to Example 4-1

Overbillings and Underbillings

In Chapter 3, we saw that when construction material, labor, and subcontractor costs were entered into the accounting system, they resulted in a reduction in the current period net income and profit. We also saw that these losses were not offset until the owner was billed for the work on the project. A company that is recording material, labor, and subcontractor costs throughout the month and not billing the owner until the first week of the following month will have an understated profit at the end of the month because the company is underbilled. Contractors who front-load a project (raise prices in the early part of the project and lower prices later) are receiving payment early in the job for work they have not yet completed. To adjust for these situations and get an accurate picture of a company's finances, the financial statements must take into account over- and underbillings.

To prepare the monthly and annual balance sheets the overbillings and underbillings must be calculated for each project. In this section we look at how to calculate the under- and overbillings for a company using the percentage-of-completion method. For a company using the percentage-of-completion method the overbillings are recorded on the balance sheet as costs and profits in excess of billings and the underbillings are recorded as billings in excess of costs and profit. A simple spreadsheet used to calculate the over- and underbillings for a company using the percentage-of-completion method are shown in Figure 4-3. A single worksheet is used to calculate the over- and underbillings for the entire company. Let's look at how to use this worksheet to calculate the over- and underbillings.

Each project or job is entered on a separate line of the form and then the costs and profits in excess of billings and the billings in excess of costs and profit are totaled for the entire company. The job number for a project is entered in Column A. This should be the same number used in the job cost ledger. The job or project name is entered into Column B. The current contract amount is entered into Column C. This amount should include all approved change orders. The current total estimated cost at completion for the project is entered in Column D. The current total estimated cost at completion comes from the committed cost worksheet shown in Figure 4-1. The estimated profit on the project equals the current contract amount less the total estimated cost at completion; therefore, Column E equals Column C less Column D.

	A	B	C	D	E	F	G	H	I	J	K	L
1										Costs &	Billings in	
2				Total		Actual		Costs &		Profits in	Excess of	
3			Current	Estimated	Estimated	Costs	Earned	Earned		Excess of	Costs &	Percentage
4	Job		Contract	Cost at	Profit	to	Profit	Profit	Total	Billings	Profits	Complete
5	#	Job Name	Amount	Completion	(C - D)	Date	(E x F / D)	(F + G)	Billed	(H - I)	(I - H)	(F x 100 / D)
6					—		—	—		—	—	—
7					—		—	—		—	—	—
8										—	—	

Figure 4-3 Overbillings and Underbillings Worksheet

The actual costs to date for the project are entered in Column F. The actual costs should include all construction costs that are included in the income statement for the project. Unbilled committed costs should not be included in these costs. The earned profit equals the percentage complete times the estimated profit. Most often the percentage complete is calculated by dividing the actual costs to date by the estimated costs at completion for the project; therefore, Column G—earned profit—is calculated by multiplying Column E by Column F and dividing the resultant by Column D. Column H, cost and earned profit, equals actual costs to date in Column F plus earned profit in Column G. The total billed to the client on the job is entered in Column I.

If costs and earned profits are greater than the total billed, the project has been underbilled and the costs and profits in excess of billings are entered in Column J, where Column J equals costs and earned profit recorded in Column H less total billed recorded in Column I. A zero is entered into Column J if costs and earned profits are less than or equal to the total billed. The total costs in excess of billings for the company is found by summing Column J for all of the company's projects.

If costs and earned profits are less than the total billed, the project has been overbilled and the billings in excess of costs and profits are entered in Column K, where Column K equals total billed in Column I less costs and earned profit in Column H. A zero is entered into Column K if costs and earned profits are greater than or equal to the total billed. The billings in excess of costs and profits for the company are found by summing Column K for all of the company's projects.

Finally, the percentage complete is entered in Column L, which is calculated by multiplying actual costs to date in Column F by 100 and dividing the resultant by the total estimated cost at completion in Column D.

Example 4-2: Determine over- and underbillings for a company with the following information:

Job Number: 301
Job Name: Henderson Remodel
Current Contract Amount: $122,500
Total Estimate Cost at Completion: $101,256
Actual Costs to Date: $95,265
Total Billed: $110,687

Job Number: 302
Job Name: Weston Offices
Current Contract Amount: $25,265
Total Estimate Cost at Completion: $18,000
Actual Costs to Date: $11,542
Total Billed: $17,253

Job Number: 303
Job Name: Johnson Warehouse

Current Contract Amount: $255,202
Total Estimate Cost at Completion: $229,564
Actual Costs to Date: $35,264
Total Billed: $41,200

Solution: First let's look at the Henderson remodel. The contract amount is $122,500 and is entered in Column C. The total estimated cost at completion is $101,256 and is entered in Column D. The estimated profit is calculated by subtracting the current contract amount from the total estimated cost at completion as follows:

Estimated Profit = $122,500 − $101,256 = $21,244

The estimated profit is recorded in Column E. The actual costs to date are $95,265 and are entered in Column F. Earned profit is calculated as follows:

Earned Profit = Estimated Profit(Actual Costs to Date)/
Total Estimated Costs at Completion

Earned Profit = $21,244($95,265)/$101,256 = $19,987

The earned profit is recorded in Column G. Costs and earned profit are calculated as follows:

Costs and Earned Profit = $95,265 + $19,987 = $115,252

The costs and earned profit are recorded in Column H. The total billed for the job is $110,687 and is entered in Column I. Because the job has been billed less than the costs and earned profit the job is underbilled or has costs and profits in excess of billings. The underbillings are calculated by subtracting the total billed from the costs and earned profits as follows:

Underbillings = $115,252 − $110,687 = $4,565

The underbillings are recorded in Column J. Billings in excess of costs and profits—Column K—are zero, because the job is underbilled. The percentage complete is calculated as follows:

Percentage Complete = Actual Costs to Date(100)/
Total Estimated Costs at Completion

Percentage Complete = $95,265(100)/$101,256 = 94%

The percentage complete is recorded in Column L. The Weston Offices and Johnson Warehouse are calculated in the same manner except both projects are overbilled. As a result, both the project's costs and profits in excess of billings are zero. The billings in excess of costs and profit for the Weston Offices are $1,053 and for the Johnson Warehouse are $1,998. For the entire company, the total costs and profits in excess of billings are $4,565 ($4,564 + $0 + $0) and the total billings in excess of costs and profits are $3,051 ($1,053 + $1,998). The spreadsheet solution is shown in Figure 4-4.

	A	B	C	D	E	F	G	H	I	J	K	L
1										Costs &	Billings in	
2				Total		Actual		Costs &		Profits in	Excess of	
3			Current	Estimated	Estimated	Costs	Earned	Earned		Excess of	Costs &	Percentage
4	Job		Contract	Cost at	Profit	to	Profit	Profit	Total	Billings	Profits	Complete
5	#	Job Name	Amount	Completion	(C - D)	Date	(E x F / D)	(F + G)	Billed	(H - I)	(I - H)	(F x 100 / D)
6	301	Henderson Remodel	122,500	101,256	21,244	95,265	19,987	115,252	110,687	4,565	—	94
	302	Weston Offices	25,265	18,000	7,265	11,542	4,658	16,200	17,253	—	1,053	64
7	303	Johnson Warehouse	255,202	229,564	25,638	35,264	3,938	39,202	41,200	—	1,998	15
8										4,565	3,050	

FIGURE 4-4 Solution to Example 4-2

INTERNAL CONTROLS

When setting up an accounting system it is important to set up internal controls to protect the company against internal theft and misappropriation of financial resources. Each year many companies run into financial difficulties—some even ending up in bankruptcy—because a trusted employee is stealing from the company or misappropriating financial resources. The internal controls vary with the size of the company. A small company with two office employees will need different internal controls than a large company. The following are some key principles to keep in mind when setting up internal controls.

The first key principle is separation of duties. The duties should be separated such that any significant theft—say over $100—requires the collaboration of two or more of the company's employees. Activities such as purchase approval, receiving, check preparation, and check signing should be done by separate persons. By separating these activities, it prevents someone—such as a superintendent—from issuing a purchase order for a fictitious purchase to a friend, signing off on the receipt of the purchase even though nothing was purchased, and sharing the money with the friend when the company pays the bill. Now it is unrealistic for the superintendent to seek approval for every small item purchased, so it is common to allow the superintendent to approve purchase orders to some limit—say $100—thus limiting the potential theft from inadequate separation of duties to small amounts. Procedures should be established to identify each employee's duties and what authority he or she has to approve purchases, disbursements, and other critical transactions.

The second key principle is maintaining a proper paper trail so that it is difficult to hide a theft by not documenting transactions or by destroying the paper trail. For this reason, purchase orders and checks should be prenumbered. Additionally, all checks issued by the company should be backed up by the proper documentation—such as a signed time card or invoice—and the documentation should be canceled by the person signing the check to prevent the duplicate payment of an invoice. Standard document processing procedures should be developed and followed for things such as receiving payments and issuing credits. This should not be delegated to out-of-house accounting firms because they usually are not familiar enough with the day-to-day operations of the company to adequately perform this audit, although they can help an owner or manager through the process.

The third key principle is that the owner, manager, or other appropriate person should review the transactions and reconciliations performed by the accounting staff as well as other cash receipts and disbursement procedures. As a part of this review process the owner, manager, or other appropriate person should hand deliver payroll checks to all employees at least annually to verify that the employees exist.

The fourth key is that all assets should be tracked and accounted for. This includes marking the physical assets with identification tags and periodically identifying the location of the company's assets.

The fifth key is to regularly and consistently perform all accounting functions, include the processing of invoices, checks, bills, and so forth; the balancing of the accounts; and the review of the accounting system. Irregular and inconsistent accounting leads to poor accounting practices and invites abuse.

The sixth key is to limit access to accounting information and documentation to those who need it to perform their job functions. The access will be different for each employee. For example, superintendents and project managers should be able to access the cost data for their project and access copies of the processed invoices, but should not be allowed to change the data in the accounting system or remove original invoices from the file without authorization. Similar controls should be applied to all employees. This limits a single employee's ability to steal from the company and hide it by changing the paper trail.

When setting up internal controls, the company should seek the help of a certified public accountant. There are internal control questionnaires prepared for the construction industry to help the accountant and contractor develop proper internal controls.

Computerized Accounting Systems

There are many accounting systems that have been specifically developed for the construction industry. These systems are often sold in modules or pieces. Commonly these modules include a general ledger, accounts receivable, accounts payable, payroll, job cost, equipment, inventory, and purchase orders. The systems are sold in modules because not all contractors will need all of the modules. For example, a contractor that leases its employees will not need the payroll module. Similarly, a contractor that has limited amounts of equipment will not need the equipment module.

Before selecting a software package, you need to decide what features your company needs in the accounting package and what features it can do without. Companies with limited inventories may find that it takes more time to implement and maintain an inventory module than it would take to track the inventory manually outside the accounting system. If you don't have a clear picture of what you want in an accounting system you risk being sold a lot of extra features that your company doesn't need and will not use. Appendix A contains a list of

some of the features that are available in accounting modules, which may be used when determining what features your accounting system needs.

When looking at an accounting system one should take the following into account:

Reliability: A company should look for an accounting package with a performance history without a lot of problems and that is virtually bug free. You don't want your company to be the first to try a system, only to spend hours working with the software vendor to solve software problems.

Cost: The cost of the software should take into account the purchase price of the software, the cost of training and support, the cost of software upgrades, and setup costs. Most accounting packages require training and support during the software implementation. Often the cost of this training and support is in addition to the cost of the software modules. Additionally, your company will need to periodically purchase upgrades to the software to fix problems and limitations with the software and maintain compatibility with computer operating systems. The cost of upgrades may be a fixed rate per year or so much every time an upgrade comes out. Different software packages often require a different amount of effort and time commitment from your company's employees during the implementation of the system. They may also require your company to purchase new computer hardware to run the software. All of these costs need to be included in the cost of the accounting system.

Training and Technical Support: Good training and support make implementation and operation of the accounting system easier, whereas poor training and support may result in a company abandoning a software package because it cannot get it to operate correctly. Good training and technical support come at a price and it is not a good idea to cut corners in these areas.

Ease of Use: The easier and more natural an accounting package is to use the easier it will be to implement. The system should be easy enough that management personnel can access the system and generate its own reports. Easy-to-use accounting packages require less training and technical support than do complex, difficult-to-use packages.

System Protection: The system should have multiple levels of password protection. Management personnel should be able to access the system and generate reports for their projects, without being able to access other projects or make changes in the accounting system. Data-entry personnel should be able to enter data into the system without accessing other areas. Good accounting systems allow users to see only those commands and projects that they have been granted access to.

Integration of Modules: The modules should be integrated in such a way that they do not require items to be entered separately in different modules. An example of good integration is an accounting system that

allows you to bill an employee's truck to the jobs it worked on at the same time you bill the employee's hours to the jobs, thus reducing the need to take a separate step allocating the truck's time to the jobs.

Backup and Recovery Procedures: The systems should allow for easy backup and recovery in the event of a loss of data due to virus, hardware failure, or another unexpected event. The data in the accounting system is valuable to a construction company and duplicate copies need to be maintained and stored in a safe, off-site location. Backups should be done on a daily and weekly basis.

Customization: The software should allow the user to create custom reports without having the software vendor modify the program. Many packages come with a report writer—which allows the user to create custom reports—and a means of exporting data into spreadsheets and word processors.

Conclusion

To get an accurate picture of the financial status of a project, unbilled committed costs must be included with the costs to date. This may be done by the accounting package or may be done in a separate spreadsheet. Additionally, committed costs should be used to estimate the cost and profit at completion for each project. To prepare the monthly and annual balance sheet, the overbillings or underbillings must be calculated for each project, which may be done in a simple spreadsheet. To protect the company's financial assets, internal controls for the company must be implemented to prevent theft and misuse of the assets. Finally, there are many accounting systems designed just for contractors. Construction companies should carefully choose the package that best fits the company's needs.

Problems

1. A contractor has a contract to construct the sanitary sewer, water line, storm drain, and street lighting for a new subdivision. The contractor uses the cost codes in Figure 2-6. The original estimate for the sewer was $25,000 and a $3,200 change order has been approved to add a manhole. The sewer work has been completed at a cost of $27,365. The original estimate for the water line was $31,000 and no changes have been made to the budget. The costs to date for the water line are $31,300 and it is estimated that it will take another $450 to complete the water line. The original estimate for the storm drain was $17,000 and no changes have been made to the budget. The contractor has paid $7,236 for materials and estimates that it will cost $9,764 to install the storm drain. The original estimate for the outside lighting was $23,600 and no changes have been made to the budget. The contractor has

subcontracted the outside lighting for $23,600. The subcontractor has billed $11,230 for materials. Determine the total estimated cost at completion for the project and the variance for each cost code.

2. A contractor has a contract to remove and replace the existing landscape and sidewalks around an office building. The work includes demolition of the existing landscaping and sidewalks, importing fill and grading around the office building, constructing new concrete sidewalks, and new landscaping. The contractor uses the cost codes in Figure 2-6. The original estimate for the demolition was $30,000 and a $5,000 change order has been approved to remove some unexpected debris found during the demolition. The demolition work has been completed at a cost of $33,562. The original estimate for the fill and grading was $17,500 and a $2,000 change order for importing additional fill to replace the debris has been approved. The fill and grading costs to date are $17,264 and the cost to complete has been estimated at $2,236. The original budget for the labor to pour the concrete was $19,200 and no changes have been made. The concrete labor has been subcontracted out for $19,200, for which the contractor has received a bill for $15,200. The original budget for the concrete for the sidewalks was $9,900 and no changes have been made. The contractor has spent $7,425 for concrete and estimates that $1,950 of concrete will be needed to complete the project. The original estimate for the landscaping was $37,500 and no changes have been made. The landscape work has been subcontracted out for $37,500. The landscaping work has yet to start and no bills have been received. Determine the total estimated cost at completion for the project and the variance for each cost code.
3. Determine over- and underbillings for a company with the following information:

   Job Number: 318
   Job Name: Mountain Peak Office Remodel
   Current Contract Amount: $256,852
   Total Estimated Cost at Completion: $225,236
   Actual Costs to Date: $202,138
   Total Billed: $252,253

   Job Number: 319
   Job Name: East Street Restaurant
   Current Contract Amount: $350,199
   Total Estimated Cost at Completion: $310,564
   Actual Costs to Date: $152,364
   Total Billed: $178,256

   Job Number: 320
   Job Name: Market Street Warehouse

Current Contract Amount: $55,123
Total Estimated Cost at Completion: $45,224
Actual Costs to Date: $5,211
Total Billed: $5,500

4. Determine over- and underbillings for a company with the following information:

Job Number: 311
Job Name: Smith Remodel
Current Contract Amount: $22,530
Total Estimated Cost at Completion: $17,264
Actual Costs to Date: $16,538
Total Billed: $21,000

Job Number: 316
Job Name: Redd Remodel
Current Contract Amount: $35,624
Total Estimated Cost at Completion: $28,221
Actual Costs to Date: $22,345
Total Billed: $28,500

Job Number: 318
Job Name: Winter Remodel
Current Contract Amount: $17,954
Total Estimated Cost at Completion: $14,567
Actual Costs to Date: $4,562
Total Billed: $6,000

Job Number: 322
Job Name: Richardson Remodel
Current Contract Amount: $5,213
Total Estimated Cost at Completion: $3,721
Actual Costs to Date: $1,956
Total Billed: $0

5. Create a spreadsheet to solve Problem 1.
6. Create a spreadsheet to solve Problem 2.
7. Create a spreadsheet to solve Problem 3.
8. Create a spreadsheet to solve Problem 4.