

EXERCISE 18-7 (25–30 minutes)

(a) 1. Gross profit recognized in 2010:		
Contract price		\$1,200,000
Costs:		
Costs to date	\$280,000	
Estimated additional costs	<u>520,000</u>	<u>800,000</u>
Total estimated profit		400,000
Percentage completion to date		
(\$280,000/\$800,000)		<u>35%</u>
Gross profit recognized in 2010		<u>\$ 140,000</u>
 Gross profit recognized in 2011:		
Contract price		\$1,200,000
Costs:		
Costs to date	\$600,000	
Estimated additional costs	<u>200,000</u>	<u>800,000</u>
Total estimated profit		400,000
Percentage completion to date		
(\$600,000/\$800,000)		<u>75%</u>
Total gross profit recognized		<u>300,000</u>
Less: Gross profit recognized in 2010		<u>140,000</u>
Gross profit recognized in 2011		<u>\$ 160,000</u>

EXERCISE 18-7 (Continued)

2. Construction in Process (\$600,000 – \$280,000)....	320,000	
Materials, Cash, Payables, etc.		320,000
Accounts Receivable (\$500,000 – \$150,000).....	350,000	
Billings on Construction in Process.....		350,000
Cash (\$320,000 – \$120,000).....	200,000	
Accounts Receivable		200,000
Construction in Process	160,000	
Construction Expenses.....	320,000	
Revenues from Long-Term Contracts		480,000*

***\$1,200,000 X [(\$600,000 – \$280,000) ÷ \$800,000]**

(b) Income Statement (2011)—

Gross profit on long-term construction contract.....		\$160,000
Balance Sheet (12/31/11)—		
Current assets:		
Receivables—construction in process.....		\$180,000*
Inventories—construction in process totaling		
\$900,000** less billings of \$500,000		\$400,000

***\$180,000 = \$500,000 – \$320,000**

**Total cost to date	\$600,000
2010 Gross profit	140,000
2011 Gross profit	160,000
	<u>\$900,000</u>

EXERCISE 18-8 (15–20 minutes)

(a) 2010— $\frac{\$640,000}{\$1,600,000} \times \$2,200,000 = \underline{\$880,000}$

2011— $\$2,200,000$ (contract price) minus $\$880,000$ (revenue recognized in 2010) = $\underline{\$1,320,000}$ (revenue recognized in 2011).

(b) All $\$2,200,000$ of the contract price is recognized as revenue in 2011.

(c) Using the percentage-of-completion method, the following entries would be made:

Construction in Process	640,000	
Materials, Cash, Payables, etc.....		640,000
Accounts Receivable	420,000	
Billings on Construction in Process		420,000
Cash	350,000	
Accounts Receivable.....		350,000
Construction in Process	240,000*	
Construction Expenses	640,000	
Revenue from Long-Term Contracts		
[from (a)].....		880,000

* $[\$2,200,000 - (\$640,000 + \$960,000)] \times (\$640,000 \div \$1,600,000)$

(Using the completed-contract method, all the same entries are made except for the last entry. No income is recognized until the contract is completed.)

EXERCISE 18-9 (15–25 minutes)

(a) Computation of Gross Profit to Be Recognized under Completed-Contract Method.

No computation necessary. No gross profit to be recognized prior to completion of contract.

Computation of Billings on Uncompleted Contract in Excess of Related Costs under Completed-Contract Method.

Construction costs incurred during the year	\$ 1,185,800
Partial billings on contract (25% X \$6,000,000).....	<u>(1,500,000)</u>
	<u>\$ (314,200)</u>

(b) Computation of Gross Profit to Be Recognized under Percentage-of-Completion Method.

Total contract price	\$6,000,000
Total estimated cost (\$1,185,800 + \$4,204,200).....	<u>5,390,000</u>
Estimated total gross profit from contract	610,000
Percentage-of-completion (\$1,185,800/\$5,390,000)	<u>22%</u>
Gross profit to be recognized during the year (\$610,000 X 22%)	<u>\$ 134,200</u>

Computation of Billings on Uncompleted Contract in Excess of Related Costs and Recognized Profit under Percentage-of-Completion Method.

Construction costs incurred during the year	\$ 1,185,800
Gross profit to be recognized during the year (above)	<u>134,200</u>
Total charged to construction-in-process	1,320,000
Partial billings on contract (25% X \$6,000,000).....	<u>(1,500,000)</u>
	<u>\$ (180,000)</u>

EXERCISE 18-10 (15–25 minutes)

BERSTLER CONSTRUCTION COMPANY
Partial Income Statement
Year Ended December 31, 2010

Revenue from long-term contracts (Project 3)	\$520,000
Costs of construction (Project 3).....	<u>330,000</u>
Gross profit	190,000
Loss on long-term contract (Project 1)*	(20,000)

***Computation of loss (Project 1)**

Contract costs through 12/31/10	\$450,000	
Estimated costs to complete.....	<u>130,000</u>	
Total estimated costs	580,000	
Total contract price.....	<u>560,000</u>	
Loss recognized in 2010.....	<u>\$ (20,000)</u>	

BERSTLER CONSTRUCTION COMPANY
Partial Balance Sheet
December 31, 2010

Current assets:		
Accounts receivable (\$1,080,000 – \$990,000)....		\$90,000
Inventories		
Construction in process		
(\$450,000 – \$20,000).....	\$430,000*	
Less: Billings	<u>360,000</u>	
Unbilled contract costs (Project 1).....		70,000
Current liabilities:		
Billings (\$220,000) in excess of contract		
costs (\$126,000) (Project 2)		94,000

*The loss of \$20,000 was subtracted from the construction in process account.

PROBLEM 18-3

(a) Gross profit recognized in:

	2010	2011	2012
Contract price	\$3,000,000	\$3,000,000	\$3,000,000
Costs:			
Costs to date	\$ 600,000	\$1,560,000	\$2,100,000
Estimated costs to complete	<u>1,400,000</u>	<u>520,000</u>	<u>0</u>
Total estimated profit	1,000,000	920,000	900,000
Percentage completed to date	<u>30%*</u>	<u>75%**</u>	<u>100%</u>
Total gross profit recognized	300,000	690,000	900,000
Less: Gross profit recognized in previous years	<u>0</u>	<u>300,000</u>	<u>690,000</u>
Gross profit recognized in current year	<u>\$ 300,000</u>	<u>\$ 390,000</u>	<u>\$ 210,000</u>

*\$600,000 ÷ \$2,000,000

**\$1,560,000 ÷ \$2,080,000

(b)

Construction in Process (\$2,100,000 – \$1,560,000).....	540,000	
Materials, Cash, Payables, etc.....		540,000
Accounts Receivable (\$3,000,000 – \$2,000,000).....	1,000,000	
Billings on Construction in Process		1,000,000
Cash (\$2,850,000 – \$1,950,000)	900,000	
Accounts Receivable.....		900,000
Construction Expenses	540,000	
Construction in Process.....	210,000	
Revenue from Long-Term Contracts.....		750,000*

*\$3,000,000 X (100% – 75%)

Billings on Construction in Process	3,000,000	
Construction in Process		3,000,000

(c)

CHANCE COMPANY
Balance Sheet (Partial)
December 31, 2011

Current assets:		
Accounts receivable		
(\$2,000,000 – \$1,950,000).....		\$ 50,000
Inventories		
Construction in process		
(\$1,560,000 + \$690,000).....	\$2,250,000	
Less: Billings	<u>2,000,000</u>	
Costs and recognized profit		
in excess of billings		250,000

PROBLEM 18-5

- (a) The completed-contract method of revenue recognition recognizes income only upon completion of a project or shipment of a product. All associated costs are expensed at the point of sale, and there are no interim charges or credits to income. Completed-contract revenue recognition is used for long-term projects when estimates of revenue and costs are not reliable.

The percentage-of-completion method of revenue recognition recognizes income and associated costs in each accounting period based upon progress. This method is preferred for long-term projects when estimates of revenues and costs are reasonably dependable. Under the percentage-of-completion method, the current status of uncompleted contracts is reflected on the financial statements.

- (b) Using the data provided for the Bluestem Tractor Plant, and on the assumption that the percentage-of-completion method of revenue recognition is used, the calculations of RCB's revenue and gross profit for 2010, 2011, and 2012 under three sets of circumstances are presented below.

1. Assuming that all costs are incurred, all billings to customers are made, and all collections from customers are received within 30 days of billing, the RCB's revenue, cost of sales, and gross profit for 2010, 2011, and 2012, are calculated as follows:

Percentage-of-Completion
(\$000 omitted)

Year	Contract Price	Costs to Date	Estimated Total Costs	Estimated Gross Profit (Col. 2–Col. 4)	Percent Complete (Col. 3/Col. 4)
(1)	(2)	(3)	(4)	(5)	(6)
2010	\$8,000	\$1,600	\$6,400*	\$1,600	25%
2011	8,000	4,480	6,400	1,600	70%
2012	8,000	6,400	6,400	1,600	100%

*(\$1,600 + \$2,880 + \$1,920)

Revenue recognition

Year	Contract Price	Percent Complete	Revenue Recognizable	Less Prior Year(s)	Current Year
2010	\$8,000	25%	\$2,000	—	\$2,000
2011	8,000	70%	5,600	\$2,000	3,600
2012	8,000	100%	8,000	5,600	2,400

Profit recognition

Year	Estimated Profit	Percent Complete	Profit Recognizable	Less Prior Year(s)	Current Year
2010	\$1,600	25%	\$ 400	—	\$400
2011	1,600	70%	1,120	\$ 400	720
2012	1,600	100%	1,600	1,120	480

2. Assuming the same facts as in Instruction (b)1., but that cost overruns of \$800,000 were experienced in 2010, RCB's revenue, costs of sales, and gross profit for 2010, 2011, and 2012 were calculated as follows:

Percentage-of-Completion
(\$000 omitted)

Year	Contract Price	Costs to Date	Estimated Total Costs	Estimated Gross Profit (Col. 2–Col. 4)	Percent Complete (Col. 3/Col. 4)
(1)	(2)	(3)	(4)	(5)	(6)
2010	\$8,000	\$2,400	\$7,200*	\$800	33.33%
2011	8,000	5,280	7,200	800	73.33%
2012	8,000	7,200	7,200	800	100%

*(\$2,400 + \$2,880 + \$1,920)

Revenue recognition

Year	Contract Price	Percent Complete	Revenue Recognizable	Less Prior Year(s)	Current Year
2010	\$8,000	33.33%	\$2,666.4	—	\$2,666.4
2011	8,000	73.33%	5,866.4	\$2,666.4	3,200.0
2012	8,000	100%	8,000	5,866.4	2,133.6

PROBLEM 18-5 (Continued)

Profit recognition

Year	Estimated Profit	Percent Complete	Profit Recognizable	Less Prior Year(s)	Current Year
2010	\$800	33.33%	\$266.6	—	\$266.6
2011	800	73.33%	586.7	\$266.6	320.1
2012	800	100%	800	586.7	213.3

3. Assuming the same facts as in Instructions (b)1. and (b)2., but that additional cost overruns of \$850,000 are experienced in 2011, RCB's revenue, cost of sales, and gross profit for 2010, 2011, and 2012 are calculated as follows:

Percentage-of-Completion
(\$000 omitted)

Year	Contract Price	Costs to Date	Estimated Total Costs	Estimated Gross Profit (Col. 2–Col. 4)	Percent Complete (Col. 3/Col. 4)
(1)	(2)	(3)	(4)	(5)	(6)
2010	\$8,000	\$2,400	\$7,200	\$800	33.33%
2011	8,000	6,130*	8,050	(50)	76.15%
2012	8,000	8,050	8,050	(50)	100%

*(\$5,280 + \$850)

Revenue recognition

Year	Contract Price	Percent Complete	Revenue Recognizable	Less Prior Year(s)	Current Year
2010	\$8,000	33.33%	\$2,666.4	—	\$2,666.4
2011	8,000	76.15%	6,092.0	\$2,666.4	3,425.6
2012	8,000	100%	8,000.0	6,092.0	1,908.0

Profit recognition

Year	Estimated Profit	Percent Complete	Profit Recognizable	Less Prior Year(s)	Current Year
2010	\$800	33.33%	\$266.6	—	\$266.6
2011	(50)	100% ^a	(50)	\$266.6	(316.6)
2012	(50)	100%	(50)	(50)	—

^aWhen there is a projected loss at any time, it must be recognized in full in the period in which a loss on the contract appears probable.

PROBLEM 18-7

(a) **Computation of Recognizable Profit/Loss
Percentage-of-Completion Method**

2010

Costs to date (12/31/10)	\$ 300,000
Estimated costs to complete	<u>1,200,000</u>
Estimated total costs	<u>\$1,500,000</u>
 Percent complete ($\$300,000 \div \$1,500,000$)	 <u>20%</u>
 Revenue recognized ($\$1,900,000 \times 20\%$)	 \$ 380,000
Costs incurred	<u>300,000</u>
Profit recognized in 2010	<u>\$ 80,000</u>

2011

Costs to date (12/31/11)	\$1,200,000
Estimated costs to complete	<u>800,000</u>
Estimated total costs	2,000,000
Contract price	<u>1,900,000</u>
Total loss	<u>\$ 100,000</u>
 Total loss	 \$ 100,000
Plus gross profit recognized in 2010	<u>80,000</u>
Loss recognized in 2011	<u>\$ 180,000</u>

OR

Percent complete ($\$1,200,000 \div \$2,000,000$)	<u>60%</u>
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Revenue recognized in 2011

$[(\$1,900,000 \times 60\%) - \$380,000]$	\$ 760,000
Costs incurred in 2011	
$(\$1,200,000 - \$300,000)$	<u>900,000</u>
Loss to date	140,000
Loss attributable to 2012*	<u>40,000</u>
Loss recognized in 2011	<u>\$ 180,000</u>

PROBLEM 18-7 (Continued)

*2012 revenue	
(\$1,900,000 – \$380,000 – \$760,000) ..	\$760,000
2012 estimated costs.....	<u>800,000</u>
2012 loss	<u>\$ (40,000)</u>

2012

Costs to date (12/31/12)		\$2,100,000
Estimated costs to complete.....		<u>0</u>
		2,100,000
Contract price.....		<u>1,900,000</u>
Total loss		<u>\$ (200,000)</u>
Total loss		\$ (200,000)
Less: Loss recognized in 2011.....	\$180,000	
Gross profit recognized in 2010.....	<u>(80,000)</u>	<u>(100,000)</u>
Loss recognized in 2012.....		<u>\$ (100,000)</u>

**(b) Computation of Recognizable Profit/Loss
Completed-Contract Method**

2010—NONE

2011

Costs to date (12/31/11).....		\$1,200,000
Estimated costs to complete		<u>800,000</u>
Estimated total costs.....		2,000,000
Deduct contract price		<u>1,900,000</u>
Loss recognized in 2011.....		<u>\$ (100,000)</u>

2012

Total costs incurred.....		\$2,100,000
Total revenue recognized.....		<u>1,900,000</u>
Total loss on contract.....		(200,000)
Deduct loss recognized in 2011.....		<u>(100,000)</u>
Loss recognized in 2012.....		<u>\$ (100,000)</u>

PROBLEM 18-15

(a)

MONAT CONSTRUCTION COMPANY, INC.
Computation of Billings on Uncompleted Contract
In Excess of Related Costs
December 31, 2010

Partial billings on contract during 2010.....	\$1,400,000
Deduct construction costs incurred during 2010	<u>1,140,000</u>
Balance, December 31, 2010	<u>\$ 260,000</u>

MONAT CONSTRUCTION COMPANY, INC.
Computation of Cost of Uncompleted Contract
In Excess of Related Billings
December 31, 2011

Balance, December 31, 2010—excess of billings over costs.....	\$ (260,000)
Add construction costs incurred during 2011 (\$3,290,000 – \$1,140,000)	<u>2,150,000</u>
	1,890,000
Deduct provision for loss on contract recognized during 2011 (\$3,290,000 + \$1,410,000 – \$4,400,000)	<u>300,000</u>
	1,590,000
Deduct partial billings during 2011 (\$2,500,000 – \$1,400,000)	<u>1,100,000</u>
Balance, December 31, 2011	<u>\$ 490,000</u>

PROBLEM 18-15 (Continued)

**MONAT CONSTRUCTION COMPANY, INC.
Computation of Costs Relating to Substantially
Completed Contract in Excess of Billings
December 31, 2012**

Balance, December 31, 2011—excess of costs over billings	\$ 490,000
Add construction costs incurred during 2012 (\$4,800,000 – \$3,290,000)	<u>1,510,000</u>
	2,000,000
Deduct loss on contract recognized during 2012 (\$4,800,000 – \$4,400,000 – \$300,000)	<u>100,000</u>
	1,900,000
Deduct partial billings during 2012 (\$4,300,000 – \$2,500,000)	<u>1,800,000</u>
Balance, December 31, 2012	<u><u>\$ 100,000</u></u>

(b)

**MONAT CONSTRUCTION COMPANY, INC.
Computation of Profit or Loss to be Recognized
On Uncompleted Contract
Year Ended December 31, 2010**

Contract price		\$4,400,000
Deduct contract costs:		
Incurred to December 31, 2010	\$1,140,000	
Estimated costs to complete	<u>2,660,000</u>	
Total estimated contract cost.....		<u>3,800,000</u>
Estimated gross profit on contract at completion		<u>\$ 600,000</u>
Profit to be recognized		<u><u>\$ 0</u></u>

(The completed-contract method recognizes income only when the contract is completed, or substantially so.)

PROBLEM 18-15 (Continued)

**MONAT CONSTRUCTION COMPANY, INC.
Computation of Loss to be Recognized
On Uncompleted Contract
Year Ended December 31, 2011**

Contract price.....		\$4,400,000
Deduct contract costs:		
Incurred to December 31, 2011	\$3,290,000	
Estimated costs to complete.....	<u>1,410,000</u>	
Total estimated contract cost.....		<u>4,700,000</u>
Loss to be recognized		<u>\$ (300,000)</u>

(The completed-contract method requires that provision should be made for an expected loss.)

**MONAT CONSTRUCTION COMPANY, INC.
Computation of Loss to Be Recognized
On Substantially Completed Contract
Year Ended December 31, 2012**

Contract price.....		\$4,400,000
Deduct contract costs incurred.....		<u>4,800,000</u>
Loss on contract		(400,000)
Deduct provision for loss booked at December 31, 2011		<u>300,000</u>
Loss to be recognized		<u>\$ (100,000)</u>

PROBLEM 18-16

Dear Sue:

This letter regards the revenue recognition matter which we discussed earlier. By using a recognition method called percentage-of-completion, you will show a profit in every year of the construction project, assuming, of course, that no unexpected losses occur.

The completed-contract method which you use presumes that revenue from the contract is not truly earned until the entire contract is finished. Although costs associated with the contract and billings to the customer are recorded, the actual gross profit is not recognized until the year of project completion.

The percentage-of-completion method, on the other hand, presumes that, as portions of the contract are completed, part of the gross profit is being earned as well. Therefore, it attempts to measure the degree of the project's completion at each year-end. (This method assumes that the contract will be completed.)

The most frequently used measure of this degree of completion is the cost-to-cost method, which determines the percentage of a project's completion as the ratio of costs that have already been incurred to the total estimated costs required in order to finish the project. This percentage is then applied to the total contract price or gross profit to arrive at the amount of revenue or gross profit recognized for the period.

In succeeding periods, the above ratio becomes larger as the project nears completion. (If the estimated costs to complete the contract have changed, the ratio's denominator as well as its numerator should be adjusted.) The new ratio will still be applied to the total contract price or gross profit, this time subtracting out the portion of revenue (or gross profit) already recognized in earlier periods.

To help you see the advantages of this method, I have computed the amount of gross profit you would have recognized on the building contract if you had used the percentage-of-completion method. Referring to the accompanying schedule, you will see that, in 2010,

2011, and 2012, you would have recognized gross profits of \$90,000, \$135,000, and \$85,000, respectively. Although the amount recognized in 2012 is significantly lower than it would have been under the completed-contract method, the amounts recognized in

2010 and 2011 actually allow you to show a profit before the project has been finished. In addition, where applicable, generally accepted accounting principles require the use of the percentage-of-completion method in preference to the completed-contract method.

I hope you find this information helpful.

Sincerely,

A. Smart Student

PROBLEM 18-16 (Continued)

**Percentage-of-Completion Method
Three-Year Schedule of Gross Profit Recognition**

Gross profit recognized in 2010:		
Contract price.....		\$1,100,000
Costs:		
Costs to date	\$240,000	
Estimated additional costs	<u>560,000</u>	<u>800,000</u>
Total estimated profit.....		300,000
Percentage completion to date ($\$240,000/\$800,000$).....		<u>30%</u>
Gross profit recognized in 2010.....		<u>\$ 90,000</u>
 Gross profit recognized in 2011:		
Contract price.....		\$1,100,000
Costs:		
Costs to date	\$600,000	
Estimated additional costs	<u>200,000</u>	<u>800,000</u>
Total estimated profit.....		300,000
Percentage completion to date ($\$600,000/\$800,000$).....		<u>75%</u>
Total gross profit recognized		225,000
Less: Gross profit recognized in 2010.....		<u>(90,000)</u>
Gross profit recognized in 2011		<u>\$ 135,000</u>
 Gross profit recognized in 2012:		
Contract price.....		\$1,100,000
Costs:		
Costs to date	\$790,000	
Estimated additional costs	<u>0</u>	<u>790,000</u>
Total estimated profit.....		310,000
Percentage completion to date ($\$790,000/\$790,000$).....		<u>100%</u>
Total gross profit recognized		310,000
Less: Gross profit recognized in 2010 and 2011 ($\$90,000 + \$135,000$).....		<u>225,000</u>
Gross profit recognized in 2012.....		<u>\$ 85,000</u>

PROBLEM 18-7

(a) **Computation of Recognizable Profit/Loss
Percentage-of-Completion Method**

2010

Costs to date (12/31/10)	\$ 300,000
Estimated costs to complete	<u>1,200,000</u>
Estimated total costs.....	<u>\$1,500,000</u>
 Percent complete ($\$300,000 \div \$1,500,000$)	 <u>20%</u>
 Revenue recognized ($\$1,900,000 \times 20\%$)	 \$ 380,000
Costs incurred.....	<u>300,000</u>
Profit recognized in 2010.....	<u>\$ 80,000</u>

2011

Costs to date (12/31/11)	\$1,200,000
Estimated costs to complete	<u>800,000</u>
Estimated total costs.....	<u>2,000,000</u>
Contract price.....	<u>1,900,000</u>
Total loss	<u>\$ 100,000</u>
 Total loss	 \$ 100,000
Plus gross profit recognized in 2010	<u>80,000</u>
Loss recognized in 2011	<u>\$ 180,000</u>

OR

Percent complete ($\$1,200,000 \div \$2,000,000$).....	<u>60%</u>
 Revenue recognized in 2011 $[(\$1,900,000 \times 60\%) - \$380,000]$	 \$ 760,000
Costs incurred in 2011 $(\$1,200,000 - \$300,000)$	 <u>900,000</u>
Loss to date.....	<u>140,000</u>

Loss attributable to 2012*	<u>40,000</u>
Loss recognized in 2011	<u>\$ 180,000</u>

PROBLEM 18-7 (Continued)

*2012 revenue	
(\$1,900,000 – \$380,000 – \$760,000) ..	\$760,000
2012 estimated costs.....	<u>800,000</u>
2012 loss	<u>\$ (40,000)</u>

2012

Costs to date (12/31/12)		\$2,100,000
Estimated costs to complete.....		<u>0</u>
		2,100,000
Contract price.....		<u>1,900,000</u>
Total loss		<u>\$ (200,000)</u>
Total loss		\$ (200,000)
Less: Loss recognized in 2011.....	\$180,000	
Gross profit recognized in 2010.....	<u>(80,000)</u>	<u>(100,000)</u>
Loss recognized in 2012.....		<u>\$ (100,000)</u>

**(b) Computation of Recognizable Profit/Loss
Completed-Contract Method**

2010—NONE

2011

Costs to date (12/31/11).....		\$1,200,000
Estimated costs to complete		<u>800,000</u>
Estimated total costs.....		2,000,000
Deduct contract price		<u>1,900,000</u>
Loss recognized in 2011.....		<u>\$ (100,000)</u>

2012

Total costs incurred.....		\$2,100,000
Total revenue recognized.....		<u>1,900,000</u>
Total loss on contract.....		(200,000)
Deduct loss recognized in 2011.....		<u>(100,000)</u>
Loss recognized in 2012.....		<u>\$ (100,000)</u>

