

Financial Management and Accounting Fundamentals for Construction

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Solution Manual for End-of-Chapter Review Questions and Exercises

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Chapter 1. Introduction

- 1. What attracted you to the construction industry? Discuss the advantages and disadvantages of a career in construction. List in descending order what you like the most of this industry. Develop a similar list with the issues that you dislike.**

Construction students tend to like outdoors and the satisfaction of having a tangible output for their work. Many professionals, especially those with a college degree, enjoy good salaries. A most common complaint about the industry is the frequent need for traveling. This, of course, can be viewed as one advantage, particularly for young construction professionals.

- 2. Write a one-page review of the financial challenges for a major ongoing construction project or for a current issue in the construction industry involving the management of finances. You can use sources such as Engineering News Record (ENR)©, a magazine available in most college and public libraries. Much information is also available in the internet, including a free, limited version of ENR.**

ENR's website is at <http://enr.construction.com>.

- 3. Contrast the effort of building a car and building a residential unit. Which one requires of more initial capital? What kinds of resources are involved? What are the main differences in their management needs?**

Interesting points that could be included in this discussion include the differences between management being located on the same premises where the car is built, and the need to control construction projects at a distance. The reliance on many independent subcontractors, the progress payment / retainage system, the long time required to complete a house, and similar points are also significant.

- 4. Would the cost of residential construction benefit by a greater use of prefabricated building components? Why it is that prefabrication is not more widely used in this industry?**

The United Kingdom's Construction Industry Directorate prepared a report (number 203032) entitled Current Practice and Potential Uses of Prefabrication, available at <http://projects.bre.co.uk/prefabrication/prefabrication.pdf>. It discusses at length this topic.

- 5. Interview a construction professional, and report the financial controls that she currently uses. In her opinion, how could be these controls used more effectively?**

The instructor should suggest that the student prepares a list of questions before performing the interview. Lists could be compared in class before the interview to select topics that will be addressed by all interviewees.

6. This chapter discusses some important differences between the manufacturing and construction industries. Can you think of issues that are common to both industries?

Lean construction is an excellent example of a set of management techniques and philosophy that had its origin in the manufacturing industry, as Lean production, and has been adjusted to the needs of the construction industry. Lean construction and Lean production focus on flow optimization, plan reliability, quality circles and many other issues that show that despite their apparent differences, both industries share many important goals and hurdles.

Chapter 2. Understanding Financial Statements

1. At the end of the fiscal year 20X2, Rainer Construction Co., Inc. has the following financial profile:

Total assets	\$1,200,000
Total liabilities	850,000
Total revenue before taxes	300,000
Total expenses	265,000

- a) What is the total net worth of this company?
- b) Did the new worth increase, decrease or remain the same compared to FY 20X1? Why?
- c) What is the income after taxes? (Assume a 50% tax rate.)

(a) Net Worth = Assets – Liabilities = 1,200,000 – 850,000 = 350,000

(b) The net worth increased, since the company had a profit in 20x2 (assuming no dividends were paid)

(c) The profit (i.e. change in net worth) is = 300,000 – 265,000 = 35,000

2. Define in your words the difference between a balance sheet and an income statement.

The main difference, as discussed in the text is that the Balance Sheet shows the financial situation at a point in time, while the Income Statement shows financial activity over a period of time.

3. The following balance sheet figures are available on the Cougar Construction Company:

	<u>Current</u>	<u>Long-Term</u>	<u>Total</u>
Assets	\$100,000	\$100,000	\$200,000
Liabilities	80,000	70,000	150,000

Find the total net worth of the company.

Net Worth = 200,000 – 150,000 = 50,000

4. The following data regarding Atlas Construction Company are available:

Current assets	\$300,000
Current liabilities	200,000
Long-term liabilities	500,000
Total net worth	200,000

What is the value of the company's fixed assets?

Total Liabilities + Net Worth = 200,000 + 500,000 + 200,000 = 900,000

Since Total Assets = Current Assets + Fixed Assets

900,000 = 300,000 + Fixed Assets

Therefore, Fixed Assets = 900,000 – 300,000 = 600,000

5. Name three accounts typical of the liability side of a Balance Sheet. In what side would you enter "discounts earned?"

"Discounts earned" result in an increase in Owner's Equity . "Discounts earned" are first credited to a sub-account of Accounts Receivable, and eventually posted to Net Worth.

6. How are the balance sheet and income statement related? Discuss the pattern of information flow between these two documents.

The Balance Sheet and Income Statement are fundamentally related by Retained Earnings with is a sub-account of Net Worth. In any given period, the difference between revenue and expenses (i.e. the Profit for a given period) from the Income Statement must be algebraically added to Retained Earnings to balance the Balance Sheet. This link is shown conceptually in Figure 5.2.

Chapter 4 discusses how any financial transaction has two parts, equal in value and opposite in effect, called debits and credits. The debit and credit parts of any transaction are "posted" to the General Ledger.

7. Given the data shown in Tables P2.1 and P2.2 for Pegasus International, Inc., what method of accounting is being used'? How has the working capital of Pegasus International changed from 20X4 to 20X5? Interpret this development considering the increase in revenue from 20X4 to 20X5.

TABLE P2.1 Pegasus International, Inc., Summary of Consolidated

Operations (Dollar Amounts and Shares Are in Thousands, Except Per-Share Amounts)

	20X5	20X4
Revenue	\$1,325,423	\$801,322
Costs and expenses		
Cost of revenue	1,211,402	726,937
Corporate administrative and general expenses	19,392	14,881
Other (income) and expenses		
Interest on indebtedness	1,354	1,671
Interest income	-6,565	-7,089
Provision for estimated losses on planned disposition of assets	—	400

Total cost and expenses	1,225,583	736,800
Earnings before income taxes	99,480	64,522
Total income taxes	52,429	31,277
Net earnings	47,411	33,245
Preferred dividend requirements	1,803	1,558
Earnings applicable to common stock	\$45,608	\$31,687

TABLE P2.2 Pegasus International, Inc., Consolidated Balance Sheet

<i>Assets</i>		<i>31 December, 20X5 and 20X4</i>	<i>20X5</i>	<i>20X4</i>
Current assets	Cash		\$10,138,000	\$13,063,000
	Short-term investments at cost, which approximates market		101,310,000	49,298,000
	Accounts and notes receivable		90,526,000	83,442,000
	Costs and earnings in excess of billings on uncompleted contracts		65,745,000	44,728,000
	Inventories at lower of cost (average and FIFO methods) or market		30,011,000	24,210,000
	Other current assets		7,751,000	9,005,000
	Total current assets		305,481,000	223,746,000
Property, plant and equipment at cost	Land		11,162,000	11,744,000
	Buildings and improvements		39,622,000	26,909,000
	Machinery and equipment		50,650,000	51,597,000
	Drilling and marine equipment		107,617,000	71,300,000
	Construction in process		42,834,000	44,230,000
	Subtotal		251,885,000	205,780,000
	Less accumulated depreciation and amortization		75,441,000	76,732,000
	Net total property, plant and equipment		176,444,000	129,048,000
Oil and gas properties at cost	Subtotal		59,814,000	50,683,000
	Less accumulated depletion and depreciation		30,455,000	20,105,000
	Net total oil and gas properties		29,359,000	30,578,000
Other assets	Excess of cost over net assets of acquired companies, less accumulated amortization		15,105,000	16,351,000
	Other		12,058,000	12,542,000
	Total other assets		27,163,000	28,893,000
Total			\$538,447,000	\$412,265,000

<i>Liabilities and Shareholders' Equity</i>		<i>20X5</i>	<i>20X4</i>
Current liabilities	Accounts payable	\$66,050,000	\$54,124,000
	Billings in excess of costs and earnings on uncompleted contracts	69,082,000	53,375,000
	Accrued liabilities	58,089,000	37,393,000
	Current portion of long-term debt	1,395,000	1,385,000
	Income taxes currently payable	24,895,000	8,209,000

	Deferred income taxes	49,599,000	31,989,000
	Total current liabilities	269,101,000	186,385,000
Long-term debt due after one year	Total	4,242,000	7,311,000
Other noncurrent liabilities	Deferred income taxes	11,623,000	11,792,000
	Other	9,162,000	4,400,000
	Total	\$20,785,000	\$16,192,000
<i>Contingencies and Commitments</i>			
Shareholders' equity	Capital stock		
	Series B preferred	\$567,000	\$663,000
	Common	9,368,000	9,203,000
	Additional capital	116,636,000	
		115,184,000	
	Retained earnings	117,748,000	77,327,000
	Total shareholders' equity	244,319,000	202,377,000
Total		\$538,447,000	\$412,265,000

(a) The fact that there are accounts payable and receivable in the Balance Sheet indicates that the accrual method is being used.

(b) This part of the problem covers Working Capital which is discussed in Chapter 3. $WC = \text{Current Assets} - \text{Current Liabilities}$. Therefore,

- Working Capital for 20X4 = $223,746,000 - 186,385,000 = 37,361,000$
- WC for 20X5 = $305,481,000 - 269,101,000 = 36,380,000$
- Change in WC = $36,380,000 - 37,361,000 = -981,000$ (a reduction)

Despite the increase in Revenue, Working Capital has decreased.