

Story Problem: please join your colleagues in groups of 3-4 to work on the answers during lunch

STAFF	TOTAL HOURS WORKED	UTILIZATION RATE	TOTAL SALARY	DIRECT LABOR (DOLLARS)	DIRECT LABOR (HOURS)	BILLING RATE	2013 POTENTIAL BILLINGS
Principal	2080	30%	\$150,000	\$ 45,000	624	\$180	\$112,320
Senior Designer	2080	65%	\$100,000	\$ 65,000	1352	\$150	\$202,800
Senior Project Manager	2080	75%	\$ 80,000	\$ 60,000	1560	\$120	\$187,200
Project Architect	2080	85%	\$ 60,000	\$ 51,000	1768	\$90	\$159,120
Intern	2080	95%	\$ 40,000	\$ 39,000	1976	\$65	\$128,440
Office Manager	2080	10%	\$ 45,000	\$ 4,500	208	\$40	\$8,320
TOTALS				\$264,500			\$798,200

1. In the previous year, MK Architects recorded:

- net revenue of \$758,000
- overhead expense of \$400,000 (includes indirect labor, payroll burden, general expense)
- direct labor expense of \$264,500

Based in this information, **answer the following questions** about the **previous year's results**:

A. What was the overhead rate?

$$400,000 / 264,500 = 1.51$$

B. What was the break-even multiplier?

$$2.51$$

C. What was the multiplier achieved? What do you know from the result?

$$758,000 / 264,500 = 2.87$$

You know the multiplier achieved of 2.87 is greater than the break-even multiplier of 2.51, so you know the firm was profitable. The profit margin was \$0.36, which means 36 cents were earned on every dollar of direct labor expense.

D. What were the profit and the profit rate? What would you do with the profit?

$$758,000 - (400,000 + 264,500) = 93,500$$

$$93,500 / 758,000 = 12.3\%$$

Profits can be fully distributed to the firm owners, some could be distributed as bonuses to staff, some could be saved to a “rainy day fund” or used to capitalize improvements

2. Based on backlog of signed contracts, MK has projected net revenue of \$950,000 for the coming year. The principal has determined that two new project architects are needed to complete the work. **Can MK afford to hire two new project architects?**
 [Assume the same salary, hours worked, and utilization rates as the current project architect]

direct labor with 2 new PAs = 264,500 + (2 x 51,000) = 366,500 new DL
 366,500 x 1.51 = 533,415 new overhead
 950,000 – (366,500 + 533,415) = 50,085 profit
 50,085 / 950,000 = 5% profit ratio

This significant reduction in profit would make me question whether 2 new PAs were needed, and if the firm could manage with only 1 new PA. Might be worth doing this exercise again with 1 PA and 1 intern to see the results.

3. Based on previous year results:
- Determine the “cost rate without overhead” (salary only) of each firm member (total salary ÷ total hours; full time work = 2080 hours)
 - Determine the break-even billing rate for each staff member (cost rate x break-even multiplier)
 - Determine the billing multiple for each firm member, to achieve a 15% profit, HINT: break-even billing rate divided by the complement of the desired profit ratio equals the profitable billing rate
 - Determine recommended billing rates

	Cost Rate	Break-even Billing Rate	Billing Rate with 15% profit	Recommended Billing Rates
Principal	72.16	181	213	200
Senior Designer	48.07	120	141	150
Senior Project Manager	38.46	96.50	113.50	120
Project Architect	28.84	72	85	100
Intern	19.23	48	56	75
Office Manager	21.63	54	63	60

Hints to help:

For question #1:

Overhead rate = overhead expense ÷ direct labor expense (DL)

Break-even multiplier = overhead rate + 1

Multiplier achieved = net revenue \div DL

Profit or Loss = net revenue – (overhead + DL)

Profit Rate = profit or loss \div net revenue

For question #2:

Determine the new direct labor expense (DL) with additional project architects

Assume the overhead rate remains constant

Determine the new overhead expense (DL x overhead rate)

Determine the profit projection (net revenue forecast – (new overhead + new DL))

Determine the projected profit rate (projected profit \div net revenue forecast)

Decide what to do...

For question #3:

Cost rate without overhead is total salary \div (2080 x FTE)

full time equivalency = 2080 hours

Break-even billing rate = cost rate x break-even multiplier

Billing rate that includes a profit rate goal is break-even billing rate divided by the complement of the desired profit