

## Facility Plumbing: A Case Study

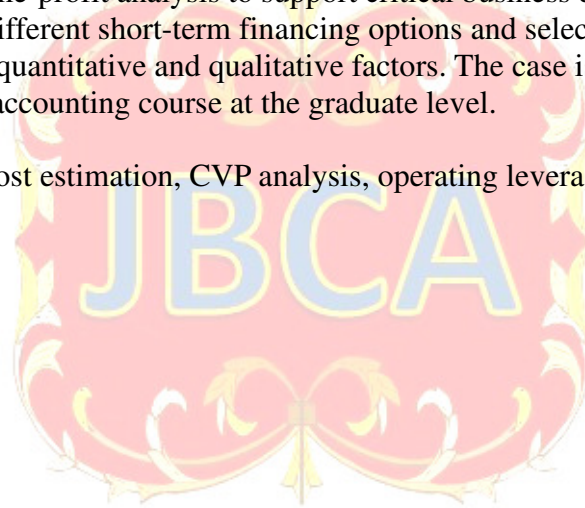
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### ABSTRACT

Facility Plumbing<sup>1</sup>, a maintenance services business, must make critical business decisions that could impact its survival. The company barely makes profits and is constantly having cash flow problems. This case illustrates the importance of applying sound managerial accounting principles to control costs and boost profits. The case will enable students to use cost estimation and cost-volume-profit analysis to support critical business decisions. Students will also analyze the cost of different short-term financing options and select the optimal financing option based on relevant quantitative and qualitative factors. The case is appropriate for an introductory managerial accounting course at the graduate level.

Keywords: break-even, cost estimation, CVP analysis, operating leverage, cost structure, cost behavior.



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<sup>1</sup> The name of the business and its owner/manager have been changed at the request of the company to preserve their anonymity.

## INTRODUCTION

It was in June 2023 as Richard drove towards Ocala, a city in Central Florida. Richard was driving to a client's store to fix a plumbing issue, and the long drive of almost 100 miles gave him plenty of time to reflect on the issues facing his company. His mind was restless as he thought about the issues facing Facility Plumbing.

Facility Plumbing was in a grim financial situation. The company had virtually no cash at hand, and meanwhile, unpaid bills were piling up. To make matters worse, payments from clients were trickling in slowly. Though many jobs had been completed, client payment was typically received 55 days after completion of a job.

The monthly income statements (Exhibit 1) showed that though revenues were substantial from many plumbing maintenance jobs, profit was low, and last month, the company reported a loss. Richard wondered whether some of the maintenance jobs were profitable. As it had become more difficult to successfully bid for jobs that were close by (within the Orlando area) due to increased competition from other maintenance companies, Richard had started doing maintenance jobs further away, with the distance for most of the recent jobs being at least 80 miles away. Though Richard was doing jobs further away, the trip rate paid by the client per job was a fixed amount of \$35. He wondered whether it was profitable to drive such long distances to complete maintenance jobs.

Another issue that bothered him was whether to use Fast Pay. The Fast Pay option allowed payment to be received within two days of submitting an invoice but at a discounted amount. Richard had used Fast Pay once but had decided not to continue using it as he did not want payments to be discounted, given that profitability was an issue. However, the company's liquidity problems had made him revisit the decision not to use Fast Pay. He sighed, and said to himself, not an easy road ahead.

## COMPANY BACKGROUND

Facility Plumbing was established in 2022 by Richard Omer. The company is based in Orlando, Central Florida. Facility Plumbing primarily fixes plumbing issues for commercial clients across Central Florida. Richard Omer is the owner and manager of the company. Richard's work experience includes a stint as a maintenance technician at a hotel in Virginia for 15 years. Richard has a Florida plumbing license.

Clients of Facility Plumbing include retail stores, offices, and restaurants. To qualify as a maintenance provider for its clients, the company took out \$1 million of general liability insurance and workers' compensation insurance.

The company's expertise is in the repair of clogged drains and sewers. The most frequent clog repair done by the company is the repair of clogged toilets and urinals. Typically, a clog repair will require a maintenance technician to arrive on site, investigate the issue, and make necessary repairs to restore the functionality of the restroom.

Repairing a clog in the restroom starts with basic snaking of the toilets or urinal. Basic snaking involves the use of a flexible metal rod to extract and/or cut through the clog. Paper towels, tissue, and other foreign materials may be extracted, after which the clogging may be resolved. If basic snaking does not fix a clog, a snaking machine with a long flexible metal rod and sharp blades at the tip is inserted in the sewer line. The snaking machine, when turned on,

begins to rotate the flexible metal rod and blade tip into the sewer line, and the blade tip cuts through the tough and hard to reach clogs such as tree roots, hair, or other debris.

Very tough clogs may need hydro jetting to be fixed. The hydro jetting machine sends a long, flexible pipe down the sewer to the obstruction. Clean water travels through the pipe, leaves the end of the pipe, and creates jets of water that are powerful enough to cut through obstructions.

### **Submission of Invoices for Jobs**

A purchase order (PO) is issued by the client to Facility Plumbing for any job to be done. The PO indicates the address of the store where the work must be done. It also indicates the date and time by which Facility Plumbing must have a technician on site. The scope of the work is also clarified in the PO. The PO shows the maximum amount payable for the job, which is the not-to-exceed amount (NTE). The contact details of the client's representative are also provided on the PO. For situations where the actual scope of the work is such that the NTE amount will be exceeded, the client's representative must be contacted to approve any work more than the NTE amount.

Typically, the client must authorize the use of a snaking machine or hydro jetting before Facility Plumbing can invoice the client for such services. Fixing a clog with a snaking machine is billed to clients at \$400, while hydro jetting to fix a clog is billed to clients at \$700. Billable labor hours are based on the number of hours on site, which must be confirmed by the manager of the store where the work was done. Work must be completed before submitting an invoice to the client against the issued PO.

### **Fast Pay**

Fast Pay is a payment option offered to help service providers that require faster payment than the contractual payment period, which is 55 days after completion and certification of the job. For service providers to be eligible for Fast Pay, they must have a service quality rating of 3.8 stars or higher out of a maximum of 5 stars. Only invoices that are approved by the client are eligible for Fast Pay. Invoices selected for Fast Pay prior to 1 pm EST are paid in the following 1-2 business days.

### **Business Line of credit**

Richard applied for a business line of credit and had recently received notification that Facility Plumbing's application was successful. Facility Plumbing was approved for an unsecured business line of credit that could help to cover cash needs when payment from customers have not yet been received.

The annual interest rate offered to Facility Plumbing was 22%, with a fee of 2.5% each time funds are drawn on the business line of credit. According to the notification of approval, payments on the business line of credit are reported to business credit reporting agencies.

### **Palm Plaza Maintenance Contract Opportunity**

Richard had recently been invited to bid for the maintenance of the restrooms at the newly opened Palm Plaza. There was a total of 55 restrooms to be covered under the

maintenance contract, and a fixed price of \$1,050 per month was being offered for the maintenance of each restroom. Richard wondered whether this new business opportunity was profitable. Given that not all restrooms will be offered to one maintenance company, another concern Richard had was determining the minimum number of restrooms that needed to be covered under a maintenance contract for him to breakeven. If his bid was successful and Facility Plumbing was maintaining the restrooms at Palm Plaza, Richard estimated the monthly operating costs for the company as indicated in Exhibit 3, with the assistance of an accountant. In addition to the monthly operating costs listed, Richard proposed to pay himself a \$3,000 salary per month from the Palm Plaza maintenance revenues. If the Palm Plaza bid was successful, Richard was considering hiring a technician full-time and paying him a salary of \$2,500 a month but decided he will rather employ a technician on contract and pay him by the hour. Richard had picked up signals of a strong possibility that the maintenance contract for the restrooms would be split up among a few maintenance companies, in which case, Facility Plumbing would get 10 restrooms. Richard wondered whether hiring a technician full-time on salary for the Palm Plaza maintenance contract would be more profitable than having a technician on contract and paying by the hour.

### **Exhibit 1: FACILITY PLUMBING**

Monthly P&L - January to May 2023

Reported on Accrual Basis

	January	February	March	April	May
Revenues	\$11,011	\$12,049	\$11,350	\$10,636	\$10,484
Cost of Services	\$7,376	\$ 8,025	\$ 7,599	\$ 7,399	\$ 7,482
Gross Profit	\$3,635	\$ 4,024	\$ 3,751	\$ 3,237	\$ 3,002
Operating Expenses	\$ 3,593	\$ 3,737	\$ 3,464	\$ 3,236	\$ 3,084
Operating Profit (loss)	\$ 42	\$ 287	\$ 287	\$ 1,000	\$ (82)

*Source: Company files.*

### **Exhibit 2: Trip Mileage and Estimated Cost for Current Clog Jobs**

Trip Mileage (miles)	Estimated Trip Cost (\$)
107.1	48
10.0	14

*Source: Company files.*

**Exhibit 3: Invoice submitted for Fast Pay**

<b>Invoice Number</b>	<b>Invoice Date</b>	<b>Service Description</b>	<b>Fast Pay Deduction</b>	<b>Invoice Amount</b>
PO120397	3/24/2023	Snaking of all 2 toilets at the store that were clogged. Paper towels, tissue, and other foreign materials were extracted because of the snaking, after which both toilets are working fine. Going forward, it is recommended that the store is careful about price labels and merchandise packaging possibly being flushed down the toilet.	-\$45	\$750
			<b>Fast Pay Total: -\$45</b>	<b>Invoice Total: \$750</b>

*Source: Company files.*

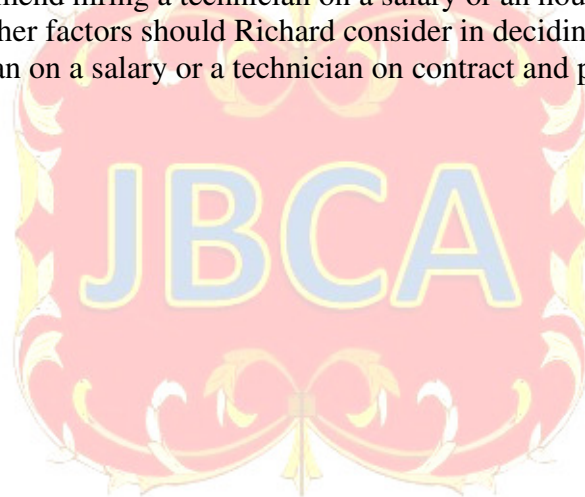
**Exhibit 4: Estimated Monthly Operating Costs for Palm Plaza Maintenance Contract**

<b>Cost description</b>	<b>Estimate (\$)</b>
Depreciation of tools and equipment	325
Labor cost per restroom	300
Variable overheads per restroom	175

*Source: Company files.*

**DISCUSSION QUESTIONS**

1. Under the current business model, should there be a maximum distance for doing maintenance jobs given the flat rate for trips of \$35? Explain Why?
2. To lower financing costs, should Facility Plumbing use Fast Pay or a business line of credit to cover short-term cash needs? What other factors should Richard consider when making the decision whether to use Fast Pay or a business line of credit?
3. Analyze the Palm Plaza maintenance contract opportunity from a qualitative perspective.
4. If Facility Plumbing's bid for the Palm Plaza restrooms maintenance contract is successful, how would the company's business model change?
5. Using Facility Plumbing's estimated monthly operating costs for the Palm Plaza maintenance contract opportunity, determine the breakeven number of restrooms (i) assuming Richard pays himself \$3,000 per month and (ii) if Richard does not use an hourly paid technician on contract, but rather employs a technician on a monthly salary of \$2,500.
6. If Facility Plumbing is awarded a maintenance contract at Palm Plaza for 10 restrooms, would you recommend hiring a technician on a salary or an hourly paid technician on contract? What other factors should Richard consider in deciding whether to employ a full-time technician on a salary or a technician on contract and paid by the hour?





## CASE LEARNING OBJECTIVES AND IMPLEMENTATION GUIDANCE

### Case Learning Objectives

This case seeks to encourage students to use managerial accounting principles for cost savings, improved profitability, and optimal business decisions. The case motivates students to critically analyze a company's business strategy and the underlying reasons for low profitability.

After learning with this case, students should be able to:

1. Use a cost estimation model to evaluate pricing and make critical business decisions.
2. Evaluate the cost of various sources of financing and determine the optimal choice of financing based on qualitative and quantitative factors.
3. Use cost-volume-profit analysis to evaluate the profitability of a business opportunity.
4. Explain how changes in the cost structure can affect business decisions and profitability.

### Implementation Guidance<sup>2</sup>

This case is designed to be taught in an introductory managerial accounting course at the graduate level. The case is best used after the instructor has covered cost behavior, cost estimation, and CVP analysis as financial tools to support business decision-making. Prior to the class discussion of the case, it is recommended that students are assigned the case in teams with each team assigned some of the discussion questions (Naumes and Naumes, 2014). Team presentations with Q&A can be used to critically analyze and discuss the case and discussion questions, after which the instructor can provide a summary analysis of the case.

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<sup>2</sup> For a copy of the teaching notes, please contact the authors by email.

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