

It's My Decision – What's The Financial Impact

2004 International Builders Show

Las Vegas, Nevada

January 19, 2004

8:30 a.m. – 10:00 a.m.

An Outline of a Talk Given by Charles C. Shinn, Jr., President
Lee Evans Group, Inc / Shinn Consulting

I. OVERVIEW

- A. Builders make decisions daily that affect the financial make up of the company
 - 1. Hiring decision
 - i. Add Staff
 - 2. Cost decisions
 - i. Add features
 - ii. Cut cost
 - 3. Growth decisions
 - i. Open a new community
 - 4. Pricing decisions
 - i. Lower price / increase volume
 - ii. Increase price / lower volume
- B. Breakeven analysis allows the company to look at the financial impact of these types of decisions prior to execution
- C. Break-even analysis is a powerful planning and financial tool, which shows the dynamics of the financial structure of your company, and the impact of management decisions you make regarding the hiring of additional staff, cost reductions, and sales price increases.
- D. Break-even analysis can be a valuable concept to:
 - 1. Understanding fundamental relationships in your business
 - 2. Establishing appropriate overhead for your volume
 - 3. Anticipating profit changes with changes in:

- Prices
 - Variable Cost Ratios
 - Operating Expenses
- E. Through the use of break-even analysis you can determine how many homes you need to sell to cover your company's operating costs, the impact of changing your direct cost or your operating expenses, and what volume you need to obtain a desired profit.

II. WHAT IS THE BREAK-EVEN POINT?

- A. The Break-even point is the point where income exactly equals the total of variable and fixed costs.
- B. Variable costs are those costs that vary directly with volume.
1. The Costs of **DOING** Business
 2. Examples of Variable Costs:
 - Land
 - Direct Construction Costs
 - Sales Commissions
 - Interim Financing
- C. Fixed or Period of Time Costs are those costs which cannot be changed rapidly by management through fairly wide changes in activity level
1. The Cost of **BEING IN** Business
 2. Examples of Fixed Costs:
 - Rent
 - Utilities
 - Salaries
 - Interest of long-term indebtedness
 - Property Taxes
 - Insurance
 - Equipment Depreciation

- D. The specific cost structures (variable and fixed costs) of your company are the result of several factors.
1. The industry cost structure
 2. The cost structure in your community
 3. Your management attitudes and decisions.

III. DETERMINING THE BREAK-EVEN POINT:

- A. Determine the dollar amount of Fixed Costs
- B. Determine the Variable Expense Ratio
- Variable Cost and Expenses divided by the Sales Volume
- C. Determine the Contribution Margin
- 1 minus the Variable Cost Ratio
- D. Formula for Calculating the Break-Even point is:
- Break-Even Point =
$$\frac{\text{Dollar Fixed Cost}}{1.00 \text{ minus Variable Cost Ratio (Contribution Margin)}}$$
- E. Chart the Break-Even point (**Exhibit 1**)

IV. TYPICAL HOME BUILDER'S FINANCIAL STRUCTURE (Base Assumption)

Sales Volume	\$10,000,000
Variable Costs	8,600,000
Fixed Costs	1,300,000
Profit	100,000
Average Sales Price	\$200,000

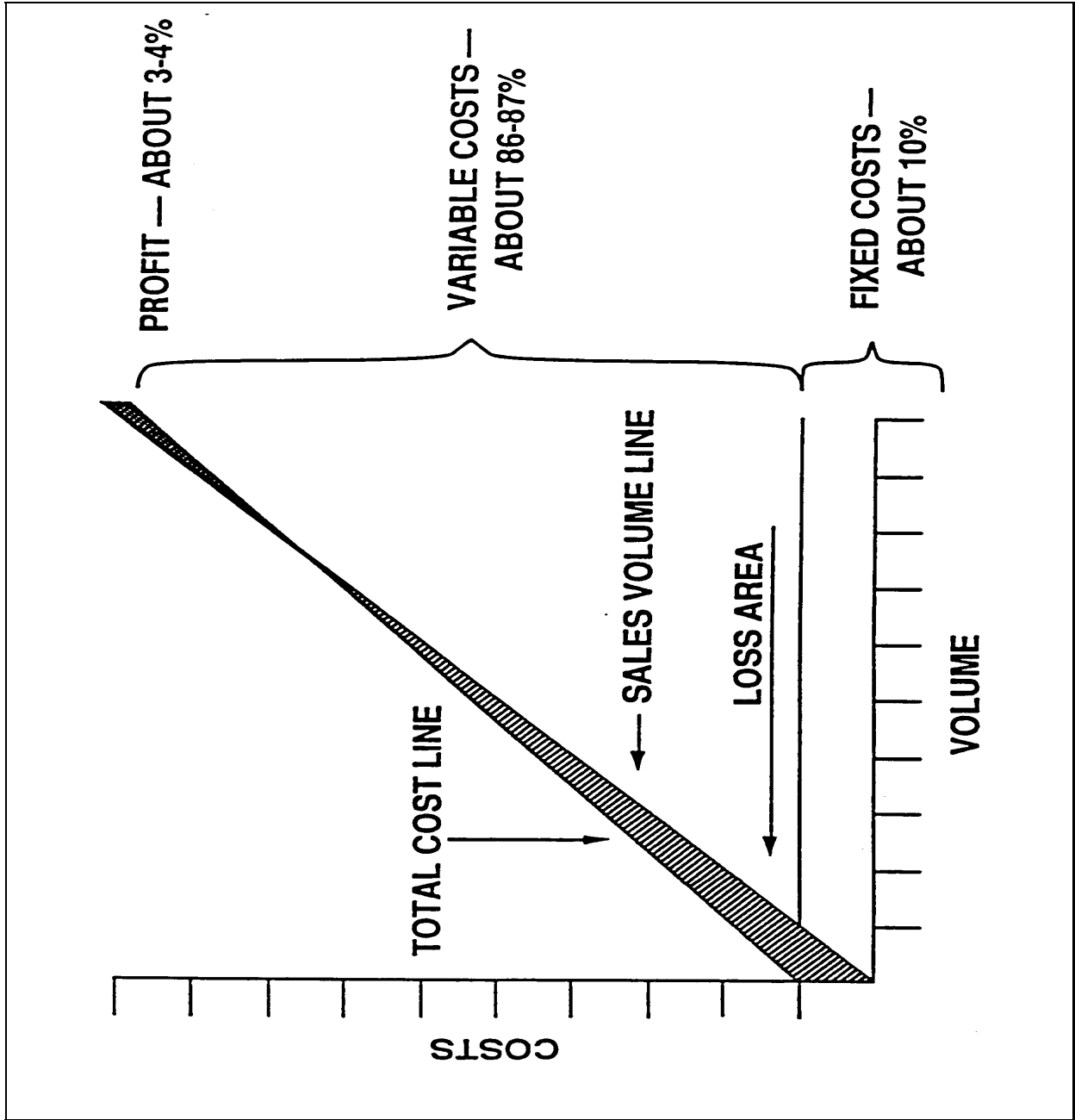


EXHIBIT 1

V. CALCULATE THE BREAK-EVEN POINT:

Variable Cost Ratio: $\$8,600,000 / \$10,000,000 = .86$

Contribution Margin: 1.00 minus Variable Cost Ratio

$$1.00 - .86 = .14$$

A. Calculation for Break-Even Point:

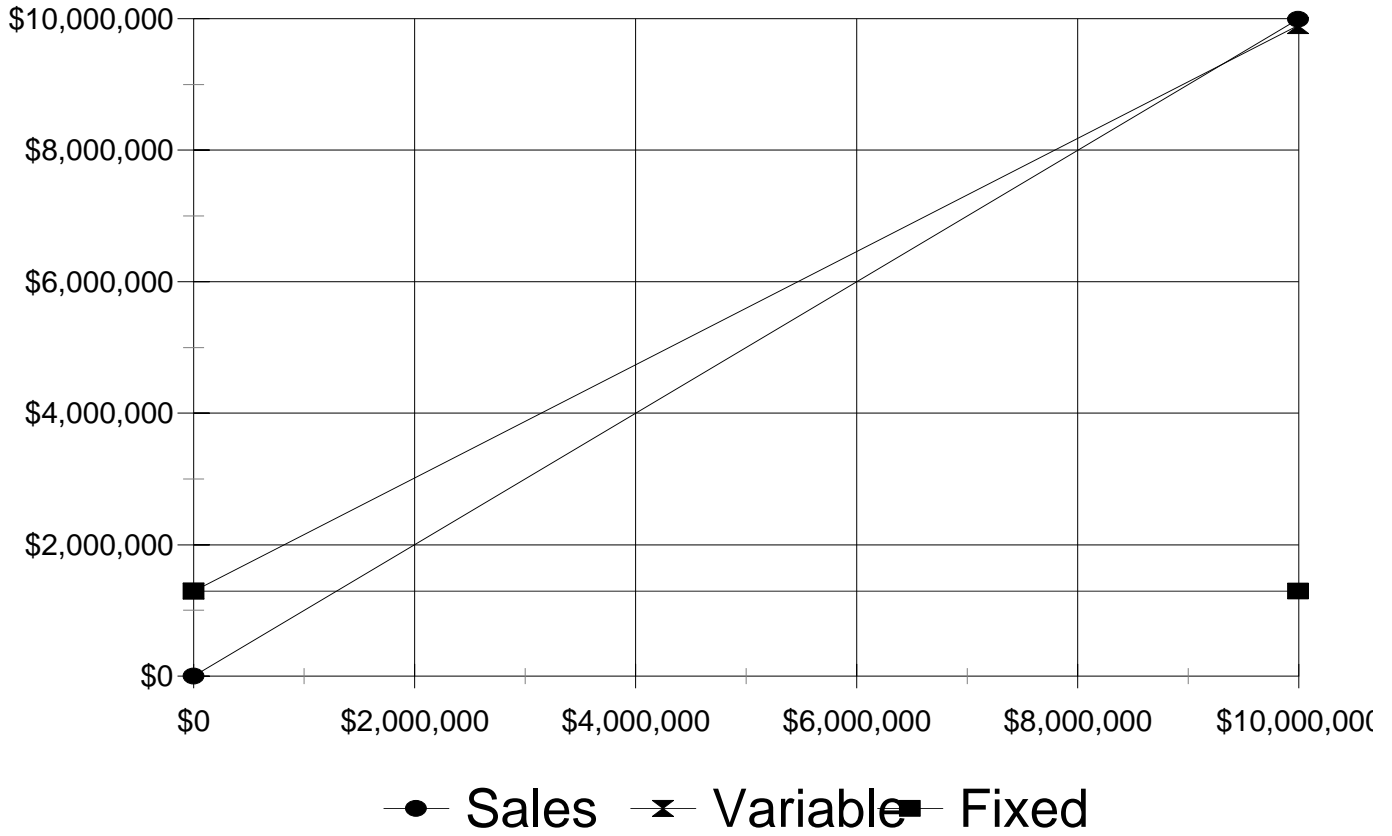
Break-Even Point: $\frac{\$1,300,000}{1.00 - .86(.14)} = \$9,285,714$

B. Break-Even Chart (Exhibit 2)**C. Break-Even Point in Housing Units:**

Contribution Margin Per Home: $\$200,000 - 172,000 = \$28,000$

Break-Even Point: $\frac{\$1,300,000}{\$28,000} = 46.4 \text{ Homes}$

Exhibit 2 Base Assumption



VI. DETERMINING VOLUME NECESSARY TO OBTAIN A PLANNED PROFIT

A. Use the Break-Even formula but add the planned profit to fixed costs.

- $$\text{Volume for Target Profit} = \frac{\text{Target Profit} + \text{Fixed Costs}}{1.0 \text{ minus Variable Cost Ratio}}$$

VII. CALCULATE THE REQUIRED VOLUME TO OBTAIN A PROFIT OF \$1,000,000

1. Calculation:

$$\frac{\$1,000,000 + \$1,300,000}{1.00 - .86} = \$16,428,571$$

2. Required Number of Housing Units:

$$\frac{\$1,000,000 + \$1,300,000}{\$28,000} = 82 \text{ Homes}$$

VIII. REDUCE FIXED COSTS BY \$200,000 FROM \$1,300,000 TO \$1,100,000

- Represents a 15.4% reduction in Fixed Costs
- Increases Net Profits by \$200,000 to \$300,000

A. Calculation for Break-Even Point

$$\text{Break-Even Point} = \frac{\$1,100,000}{1.00 - .86(.14)} = \$7,857,143$$

- A reduction in the Break-Even Point of \$1,428,571

B. Break-Even Chart (**Exhibit 3**)

C. Break-Even Point in Housing Units:

$$\text{Contribution Margin} = \$28,000$$

$$\text{Break-Even Point} = \frac{\$1,100,000}{\$28,000} = 39.3 \text{ Homes}$$

- A reduction in the Break-Even Point of 7 Homes

D. Required Volume for Target Profit of \$1,000,000

1. Calculation:

$$\frac{\$1,000,000 + \$1,100,000}{1.00 - .86(.14)} = \$15,000,000$$

- A reduction in required volume of \$1,428,571

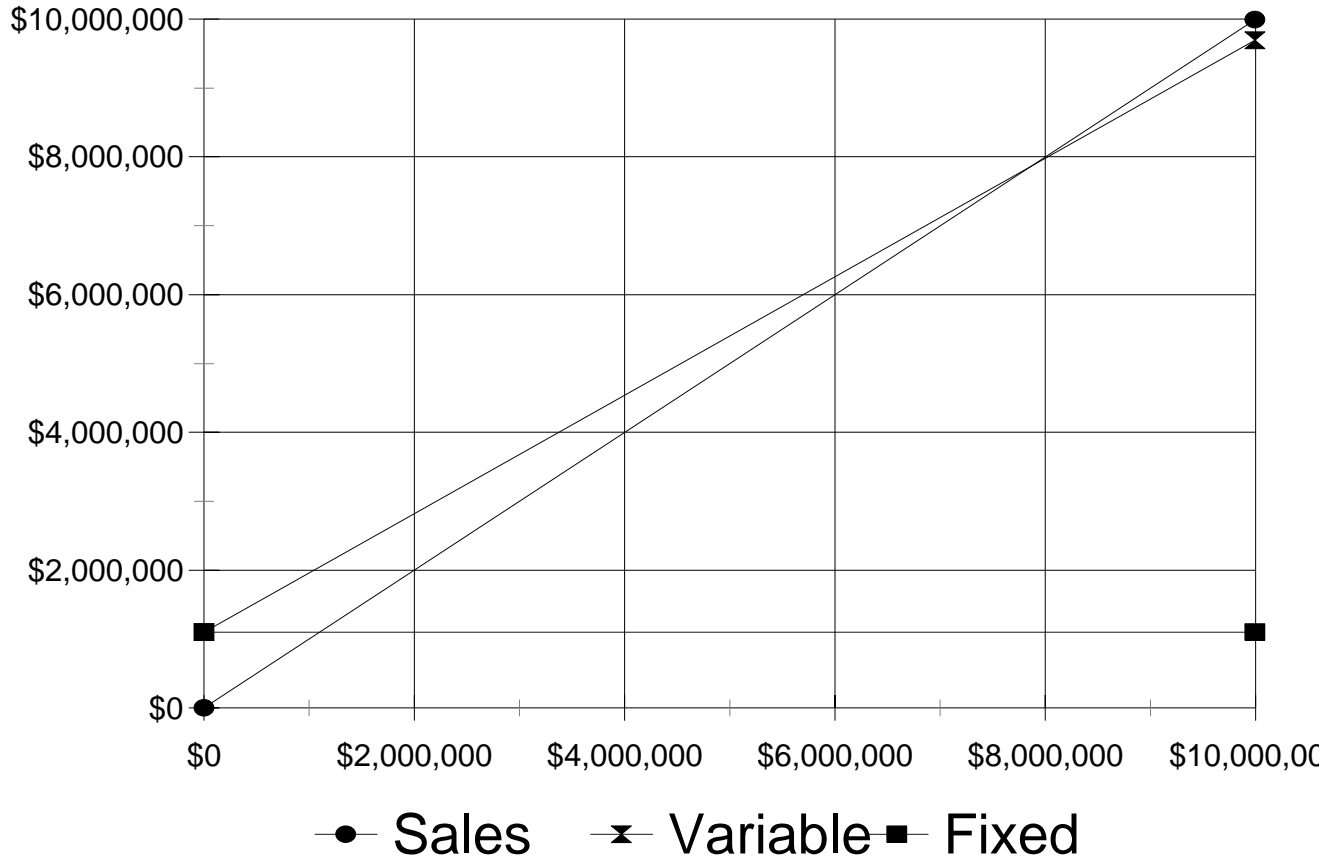
2. Required Number of Housing Units:

$$\frac{\$1,000,000 + \$1,100,000}{\$28,000} = 75 \text{ Homes}$$

- A reduction in required housing units of 7 homes

Exhibit 3

Reduce Fixed Cost \$200,000



IX. REDUCE VARIABLE COST BY 6.0 PERCENTAGE POINTS FROM 86% to 80%

- Increased Net Profits by \$600,000 to \$700,000

A. Calculation for Break-Even Point:

$$\text{Variable Cost Ratio:} \quad \$8,000,000 / \$10,000,000 = .80$$

$$\text{Contribution Margin:} \quad 1.00 \text{ minus Variable Expense Ratio}$$

$$1.00 - .80 = .20$$

$$\text{Break-Even Point:} \quad \frac{\$1,300,000}{1.00 - .80(.20)} = \$6,500,000$$

- A reduction in the Break-Even Point of \$2,785,714

B. Break- Even Chart (**Exhibit 4**)

C. Break-Even Point in Housing Units:

$$\text{Contribution Margin Per Home} = \$200,000 - 160,000 = \$40,000$$

$$\text{Break-Even Point} = \frac{\$1,300,000}{\$40,000} = 32.5 \text{ Homes}$$

- A reduction in Break-Even Point of 14 Homes

D. Required Volume for Target Profit of \$1,000,000

1. Calculation:

$$\frac{\$1,000,000 + \$1,300,000}{1.00 - .80(.20)} = \$11,500,000$$

- A reduction of required volume by \$4,928,571

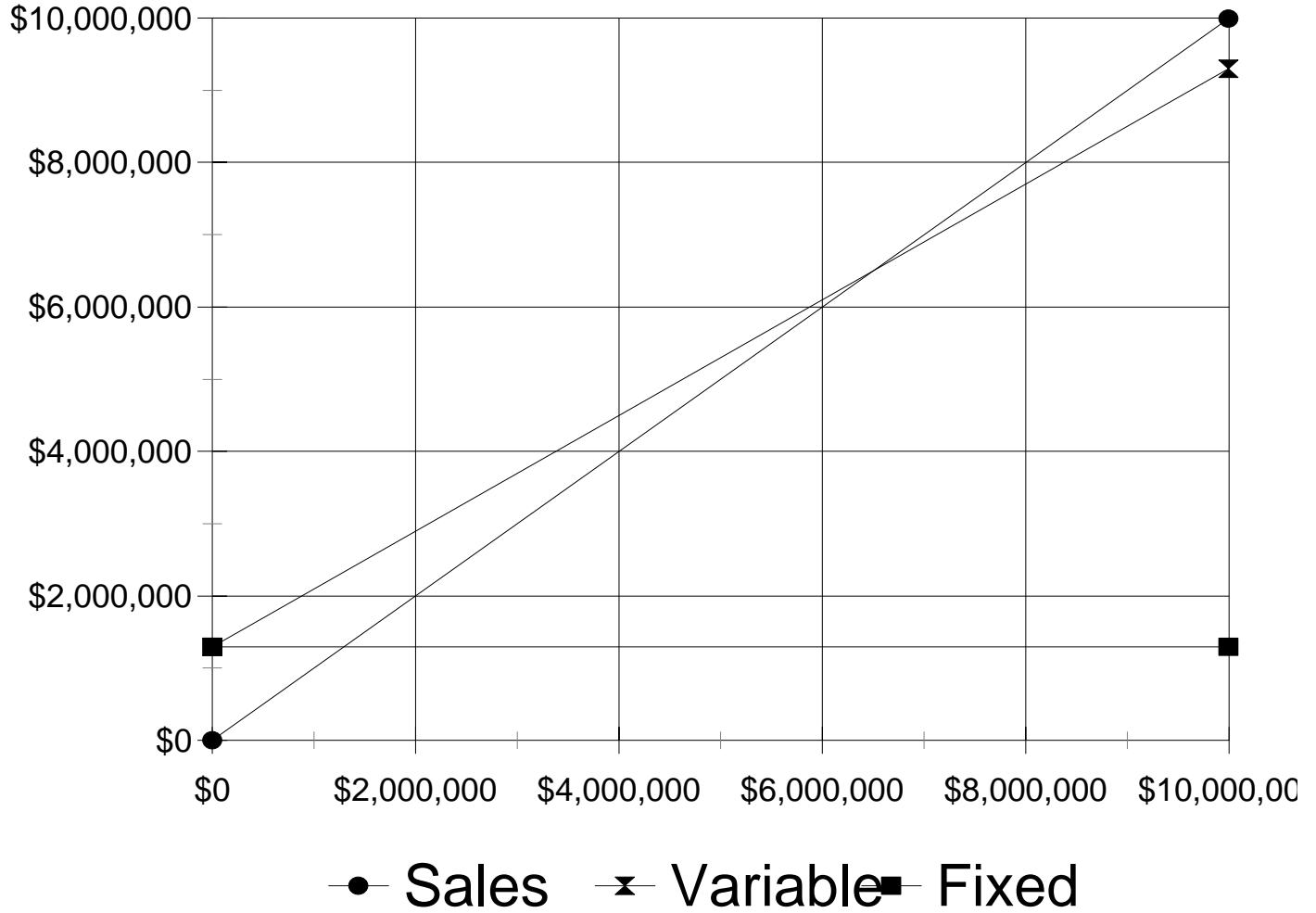
2. Required Number of Housing Units:

$$\frac{\$1,000,000 + \$1,300,000}{\$40,000} = 57.5 \text{ Homes}$$

- A reduction in required housing units of 24.5 homes

Exhibit 4

Reduce Variable Cost 6%



X. OPEN A NEW COMMUNITY WITH SALES OF 25 HOMES

The builder decides to expand by opening a new subdivision. He anticipates the new subdivision will be able to generate a sales volume of 25 homes at an average sales price of \$200,000. In order to undertake the new development the builder will incur an increase in fixed costs for indirect construction costs, financing, sales costs of \$300,000.

$$\text{Sales Volume} = \$15,000,000$$

$$\text{Variable Cost Ratio} = 86\%$$

$$\text{Fixed Costs} = \$1,600,000$$

(Increases in Indirect, Financing, and Sales Costs of \$300,000)

- Increases Net Profit by \$400,000 to \$500,000

A. Calculation for Break-Even Point:

$$\text{Break-Even Point: } \frac{1,600,000}{1.00 - .86(.14)} = \$11,428,571$$

- Increases the Break-Even Point by \$2,142,857

B. Break-Even Chart (Exhibit 5)**C. Break-Even Point in Housing Units:**

$$\text{Break-Even Point: } \frac{\$1,600,000}{\$28,000} = 57.1 \text{ Homes}$$

- Increases the Break-Even Point by 10.7 homes

D. Required Volume for Target Profit of \$1,000,000**1. Calculation:**

$$\frac{\$1,000,000 + \$1,600,000}{1.00 - .86(.14)} = \$18,571,428$$

- Increases the required volume by \$2,142,857

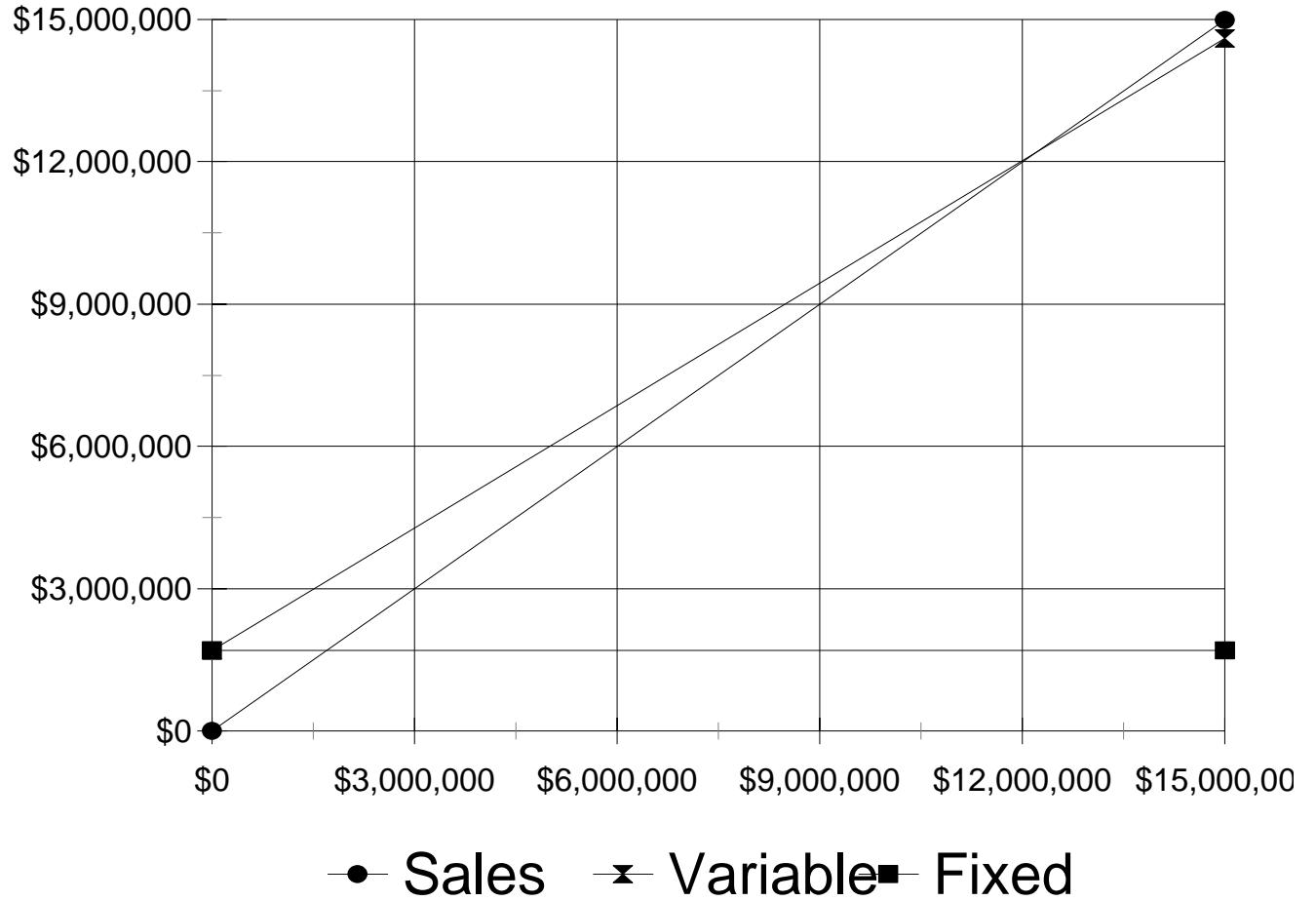
2. Required Number of Housing Units:

$$\frac{\$1,000,000 + \$1,600,000}{\$28,000} = 92.9 \text{ Homes}$$

- Increases the required volume of housing units by 10.9 homes

Exhibit 5

Open New Community



XI. HIRE A NEW QUALITY CONTROL/WARRANTY MANAGER

The builder hires a new Quality Control/Warranty manager to resolve some quality problems. The new manager will be paid \$40,000 per year with a fringe benefit package representing 20% of the annual salary.

- Increase fixed costs \$40,000 + \$8,000
- Fixed Costs = \$1,348,000
- Reduces Net Profit by \$48,000 to \$62,000

A. Calculation for Break-Even Point:

$$\text{Break-Even Point:} \quad \frac{\$1,348,000}{1.00 - .86(.14)} = \$9,628,570$$

- Increase in the Break-Even Point of \$342,857

B. Break-Even Chart (**Exhibit 6**)

C. Break-Even Point in Housing Units:

Contribution Margin Per Home =

$$\$200,000 - \$172,000 = \$28,000$$

$$\text{Break-Even Point} = \frac{\$1,348,000}{\$28,000} = 48.1 \text{ Homes}$$

- An increase in Break-Even Point of 1.7 Homes

D. Calculation of required Volume for Target Profit of \$1,000,000

1. Calculation:

$$\frac{\$1,000,000 + \$1,348,000}{1.00 - .86(.14)} = \$16,771,428$$

- An increase of required volume by \$342,857

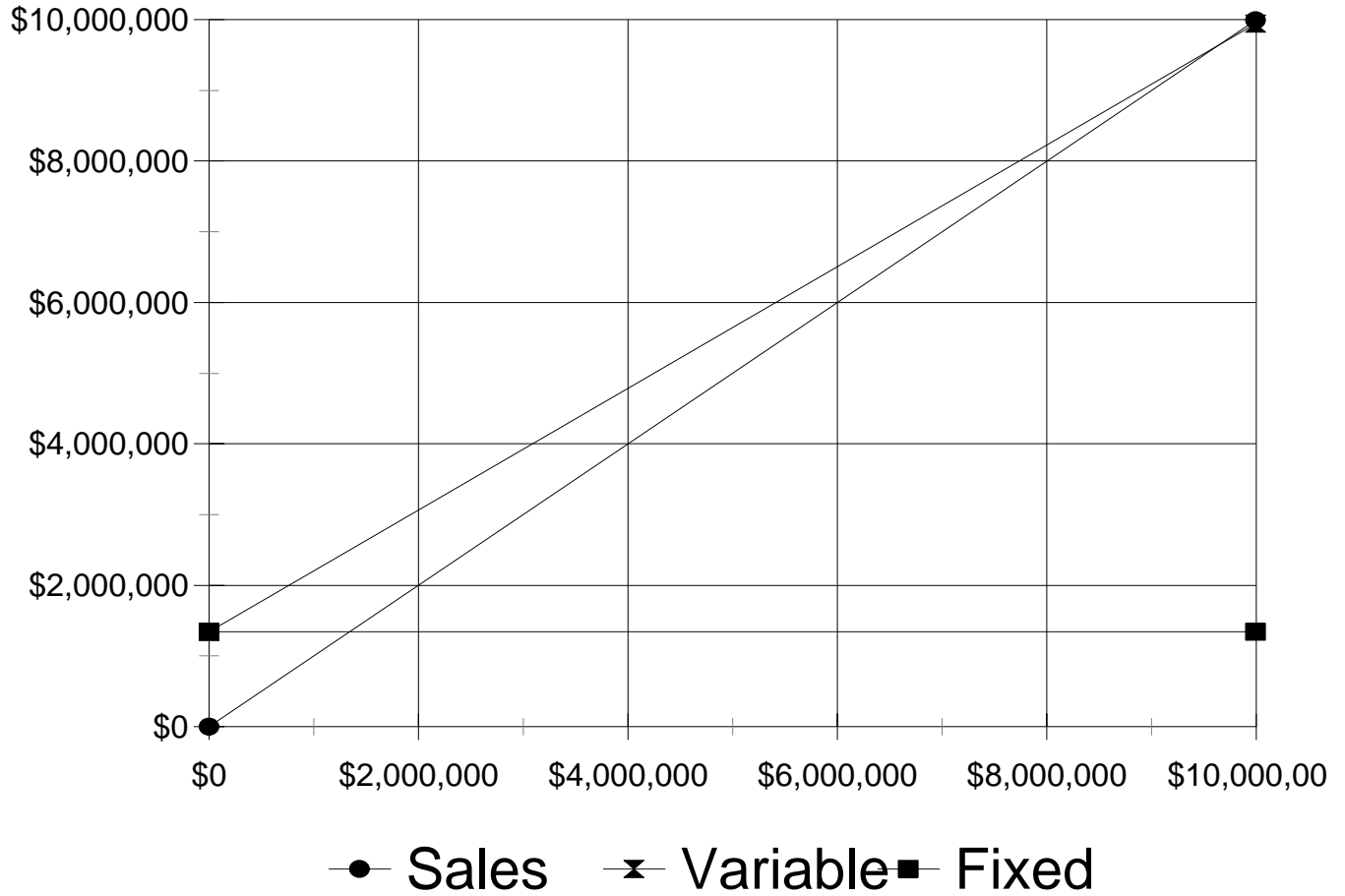
2. Required Number of Housing Units needed for Target Profit:

$$\frac{\$1,000,000 + \$1,348,000}{\$28,000} = 83.8 \text{ Homes}$$

- An increase in required housing units of 1.8 homes

Exhibit 6

Hire Quality/Warranty Manager



XII. HIRE AN EMPLOYEE FOR ESTIMATING/PURCHASING TO GAIN CONTROL OF DIRECT CONSTRUCTION COSTS.

The builder hires an estimating/purchasing employee to gain control of direct construction costs. The new employee will be paid \$40,000 per year with a fringe Benefit package representing 20% of the annual salary. The addition of the estimating/purchasing manager is anticipated to reduce construction costs by 3 percentage points or \$6,000 per house.

Increase Fixed Cost: Salary	\$40,000
Fringe Benefits	<u>8,000</u>
Total	\$48,000

Reduction In Construction Costs \$ 6,000/Home

- Increases Net Profits by \$252,000 to \$352,000

A. Calculation for Break-Even Point:

Variable Cost Ratio = 83%

Fixed Costs = \$1,348,000

Break-Even Point = $\frac{\$1,348,000}{1.00 - .83(.17)} = \$7,929,412$

- A reduction in the Break-Even Point of \$1,356,302

B. Break-Even Chart (**Exhibit 7**)

C. Break-Even Point in Housing Units:

Contribution Margin Per Home: \$200,000 - 166,000 = \$34,000

Break-Even Point = $\frac{\$1,348,000}{\$34,000} = 39.5$ Homes

- A reduction in the Break-Even Point of 6.9 Homes

D. Required Volume for Target Profit of \$1,000,000

1. Calculation:

$$\frac{\$1,000,000 + \$1,348,000}{1.00 - .83(.17)} = 13,811,764$$

- A reduction in the required volume of \$2,616,807

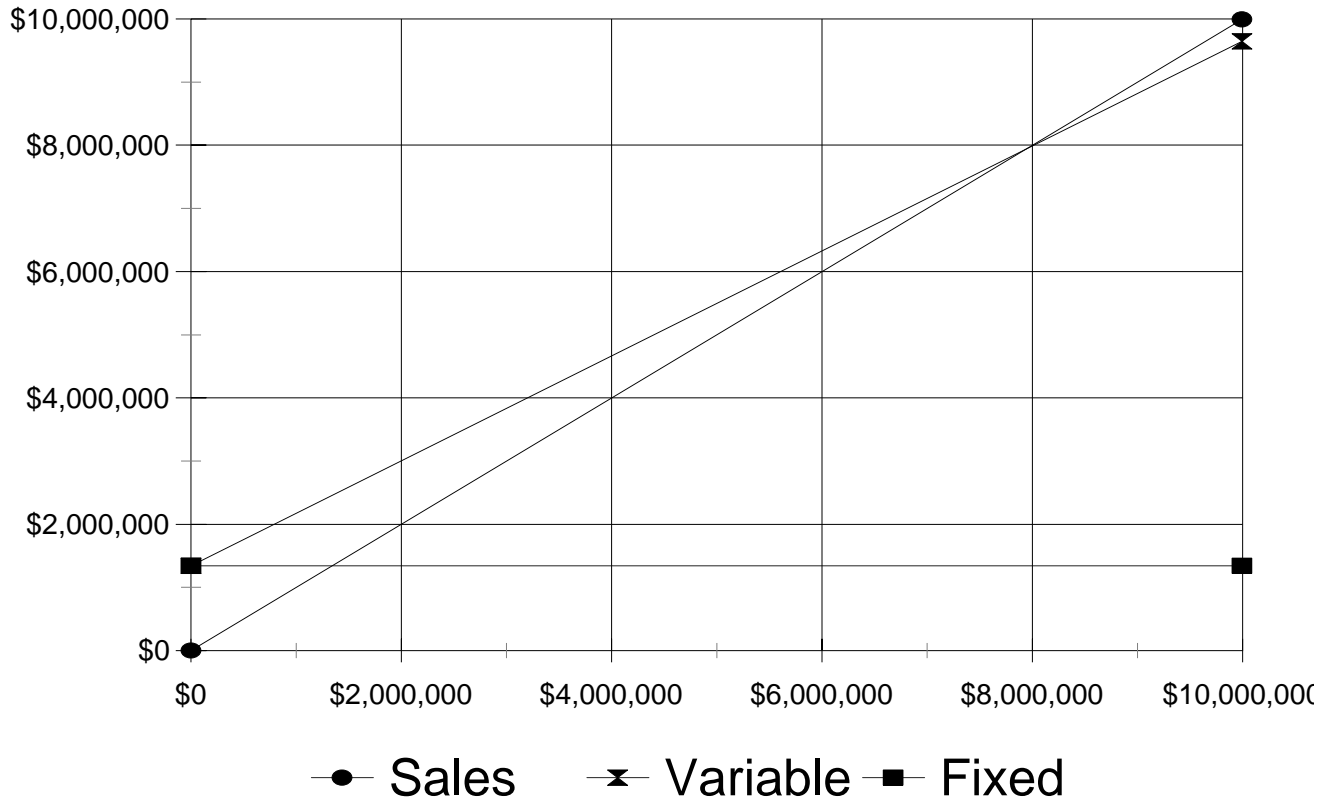
2. Required Number of Housing Units:

$$\frac{1,000,000 + 1,348,000}{\$34,000} = 69 \text{ Homes}$$

- A reduction in the volume of housing units by 13 homes

Exhibit 7

Hire Estimating/Purchasing Manager



XIII. INCREASE SALES PRICE BY \$5,000 WHICH REDUCES SALES VOLUME BY 10%

- New Sales Price of \$205,000
- New Volume of Sales of 45 housing units
- New Dollar Sales Volume = \$9,225,000
- Increase in Profit of \$85,000 from \$100,000 to \$185,000

A. Calculation for Break-Even Point:

- Variable Cost Ratio:

$$\$7,740,000 / 9,225,000 = 83.9\%$$

- Contribution Margin:

1.00 minus Variable Expense Ratio

$$1.00 - .839 = .161$$

$$\text{Break-Even Point: } \frac{\$1,300,000}{1.00 - .839(.161)} = \$8,074,534$$

- Reduction in the Break-Even Point of \$1,211,180

B. Break-Even Chart (**Exhibit 8**)

C. Break-Even Point in Housing Units:

Contribution Margin Per Home =

$$\$205,000 - \$172,000 = \$33,000$$

$$\text{Break-Even Point} = \frac{\$1,300,000}{\$33,000} = 39.4 \text{ Homes}$$

- A reduction in Break-Even Point of 7 Homes

D. Calculation of required volume for Target Profit of \$1,000,000

$$\frac{\$1,000,000 + \$1,300,000}{1.00 - .839} = \$14,285,714$$

- A reduction of required volume by \$2,142,857

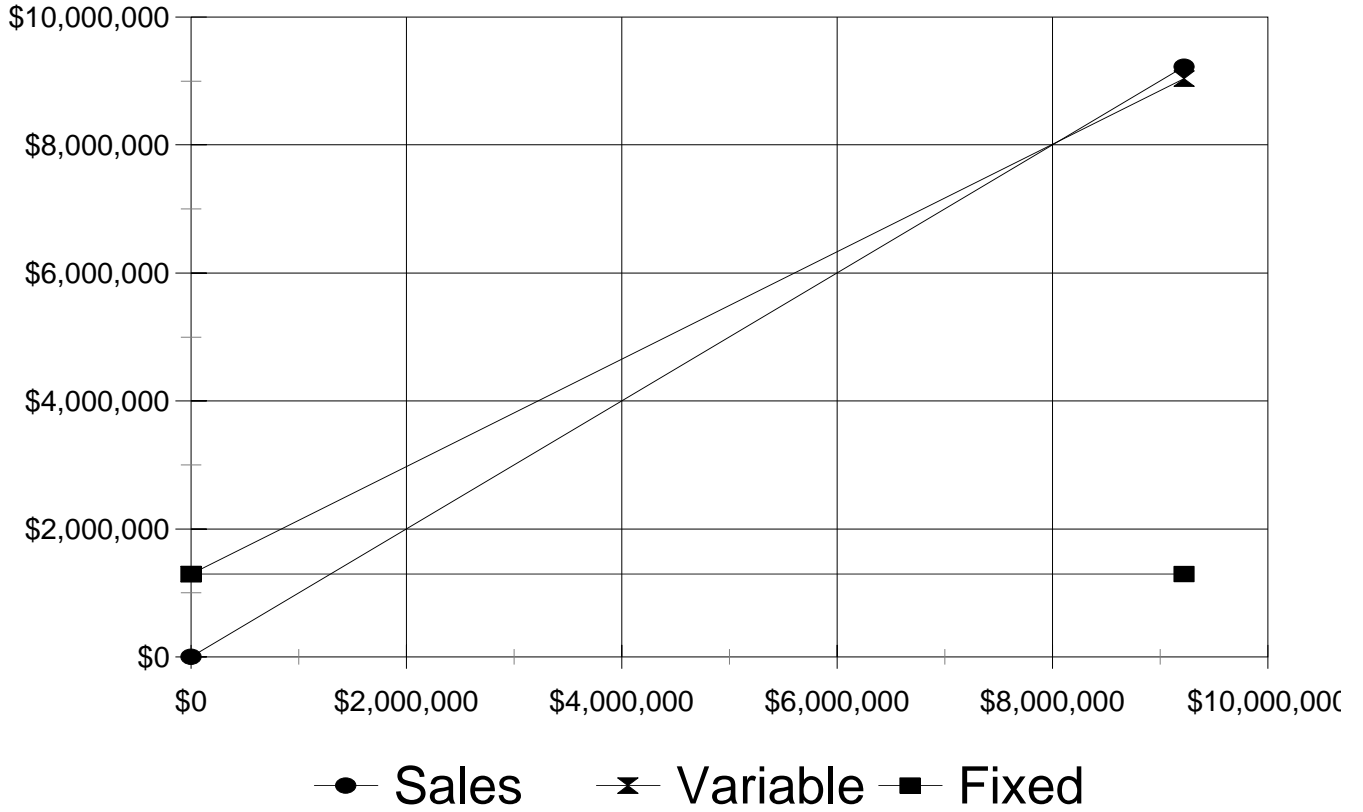
Required Number of Housing Units needed for Target Profit:

$$\frac{\$1,000,000 + \$1,300,000}{\$33,000} = 69.7 \text{ Homes}$$

- A reduction in required housing units of 12.3 homes

Exhibit 8

Increase Price \$5,000; Reduce Vol. 10%



XIV. REDUCE SALES PRICE BY \$5,000 WHICH INCREASES SALES VOLUME BY 10%

- New Sales Price \$195,000
- New Volume of Sales of 55 housing units
- New Dollar Sales Volume = \$10,725,000
- Decrease in Profit of \$135,000 from \$100,000 to (\$35,000)

A. Calculation for Break-Even Point:

- Variable Cost Ratio:

$$\$9,460,000 / \$10,725,000 = 88.2\%$$

- Contribution Margin:

1.00 minus Variable Expense Ratio

$$1.00 - .882 = .118$$

$$\text{Break-Even Point: } \frac{\$1,300,000}{1.00 - .882(.118)} = \$11,016,949$$

- Increase in the Break-Even Point of \$1,731,235

B. Break-Even Chart (**Exhibit 9**)

C. Break-Even Point in Housing Units:

Contribution Margin Per Home =

$$\$195,000 - \$172,000 = \$23,000$$

$$\text{Break-Even Point} = \frac{\$1,300,000}{\$23,000} = 56.5 \text{ Homes}$$

- An increase in Break-Even Point of 10.1 Homes

D. Required Volume for Target Profit of \$1,000,000

1. Calculation:

$$\frac{\$1,000,000 + \$1,300,000}{1.00 - .882(.118)} = \$19,491,525$$

- An increase in required volume by \$3,062,954

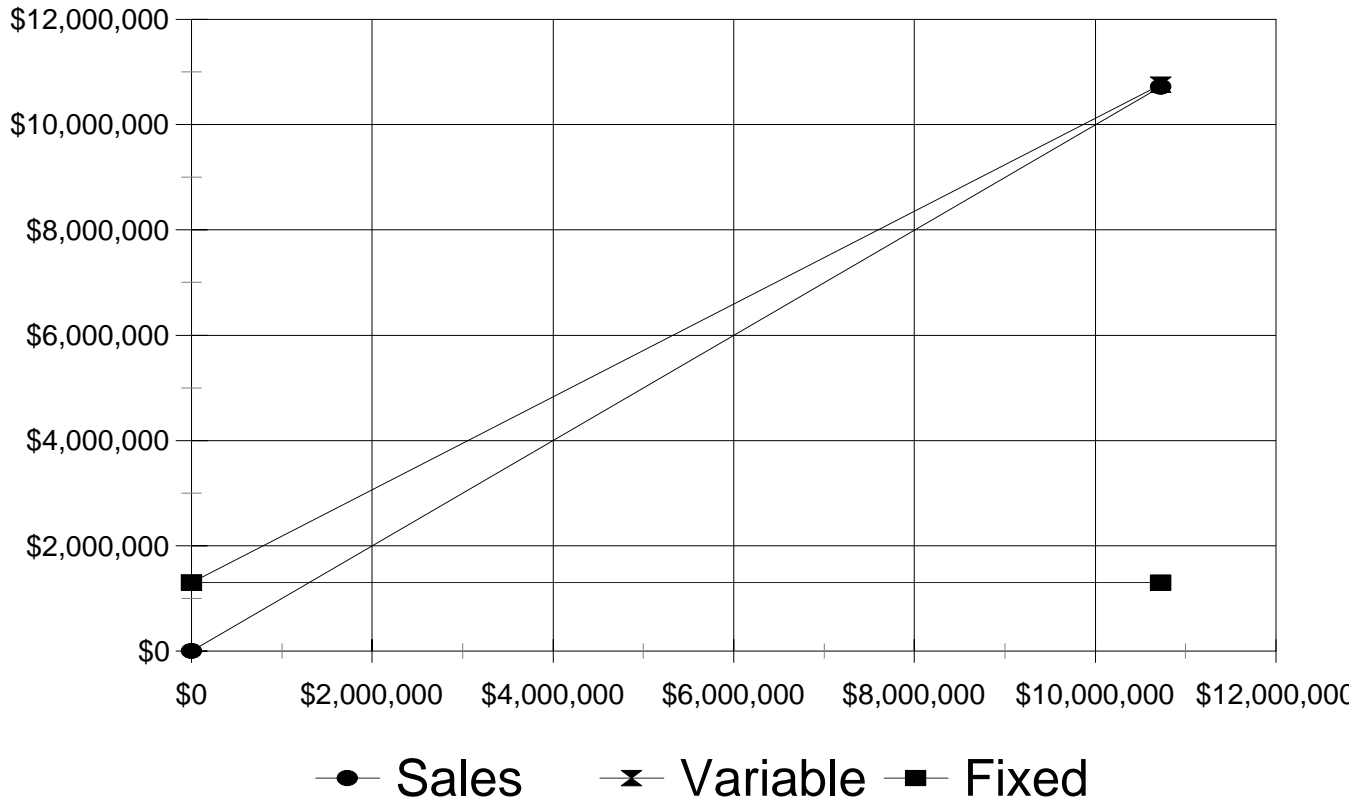
2. Required Number of Housing Units needed for Target Profit:

$$\frac{\$1,000,000 + \$1,300,000}{\$23,000} = 100 \text{ Homes}$$

- An increase in required housing units of 18 homes

Exhibit 9

Reduce Price \$5,000; Increase Vol. 10%



XV. THE BUILDERS DECIDES HE IS GOING TO CHANGE THE PRICING

STRATEGY OF MARGINAL PRICING. ONCE HE REACHES HIS BREAK-EVEN POINT HE IS GOING TO REDUCE HIS AVERAGE SALES PRICE 2.5% OR \$5,000. THIS REDUCTION IN SALES PRICE SHOULD INCREASE HIS SALES VELOCITY OF HOUSES BY 10%.

A. Calculate Profit by Marginal Pricing

47 Houses at \$200,000 = \$9,400,000 x .14 contribution =
\$1,316,000

8 Houses at \$195,000 = \$1,560,000 x .118 contribution = \$184,080

TOTAL CONTRIBUTION **\$1,500,080**

Fixed Cost \$1,300,000

TOTAL PROFIT **\$200,080**

B. Increase in profit of \$100,080

C. Volume needed for Target Profit

$$\frac{\$1,300,000}{.14} + \frac{\$1,000,000}{.118} = \$9,285,714 + \$8,474,576 = \mathbf{\$17,760,290}$$

D. Increase in Required Volume of \$1,331,719

E. Number of Houses Required for Target Profit

\$9,285,714/\$200,000 = 46.4 Houses

\$8,474,576/\$195,000 = 43.5 Houses

TOTAL HOUSES **90 Houses**

F. Increase in the number of closings of **6 Houses**

XVI. A MANUFACTURER WITH AN ANNUAL SALES VOLUME OF \$10,000,000 WANTS TO DETERMINE HIS BREAK-EVEN POINT. HIS FIXED COSTS FOR

PLANT AND EQUIPMENT AND SALARIES IS \$7,500,000 AND HIS VARIABLE EXPENSES ARE \$2,000,000.

A. Calculation of Break-Even Point

$$\text{Break-Even Point} = \frac{\$7,500,000}{1 - .20} = \mathbf{\$9,375,000}$$

- Break-Even Chart (**Exhibit 10**)

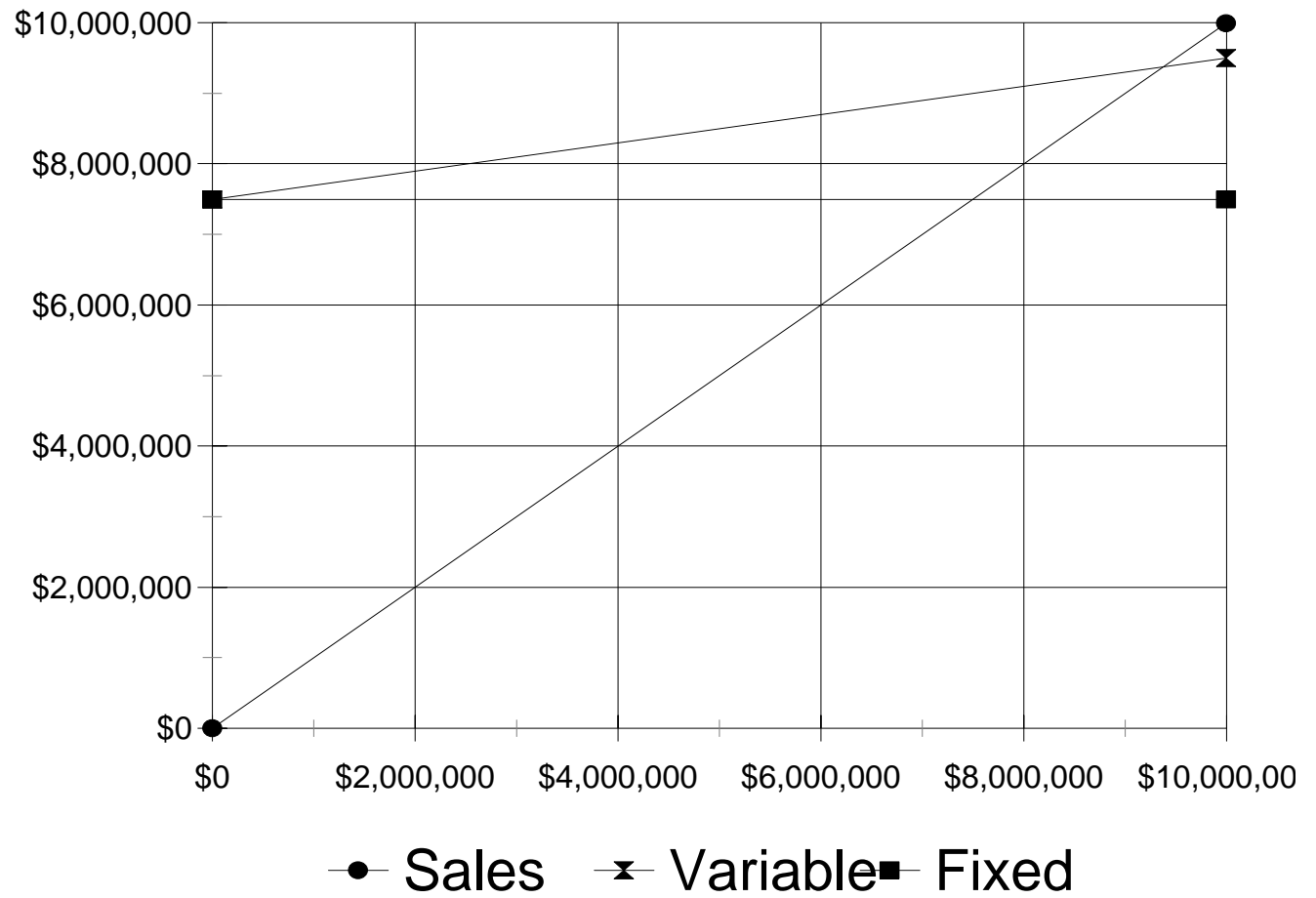
B. Required Volume for Target Profit of \$1,000,000

$$\frac{\$1,000,000 + \$7,500,000}{1 - .20} = \mathbf{\$10,625,000}$$

C. Difference Between Manufacturers and Builder's Volume for Target Profit

•	Manufacturer's Volume	\$10,625,000
•	Builder's Volume	\$16,428,571
•	Difference	\$5,803,571

Exhibit 10 Manufacturer



XVII. TARGETS

TARGET RATIOS FOR HOMEBUILDERS

	Target	Typical
Sales	100.0	100.0
Cost of Sales	70.0	78.0
- 85.0		
Land (Market Value)	20.0	16.0 - 25.0
Hard Cost	50.0	58.0 - 65.0
Gross Margin	30.0	22.0 -
15.0		
Indirect Construction Costs	3.5	5.0 -
6.0		
Supervisory Salaries & Payroll Burden		1.5
Warranty	0.6	
Other (Truck, Equip., Constr. Office, etc.)		1.4
Financing Expense	4.0	3.0 -
7.0		
Interim Interest	2.0	
Points, Closing Costs, Fees	2.0	
Marketing Expenses	6.0	5.0 - 10.0
Sales Commissions - Internal		1.5
Brokerage Commissions		2.0
Advertising	1.0	
Model Homes	1.0	
Other	0.5	
General Administrative Expenses	4.5	4.0 -
7.0		
Key Person Salaries	2.0	
Accounting & Computers		0.5
Other (Rent, Insurance, etc.)		2.0
Net Profit	12.0	3.5 - 5.0

XVIII. TARGET RATIOS BREAK-EVEN CALCULATIONS

Variable Cost Ratio	77.5%
Contribution Margin	$1.00 - .775 = 22.5\%$
Fixed Costs	\$1,050,000
Profit	\$1,200,000

A. Calculation for Break Even Point:

$$\text{Break-Even Point} = \frac{\$1,050,000}{1.00 - .775(.225)} = \$4,666,667$$

- A reduction in Break-Even Point of \$4,619,047

B. Break-Even Chart (**Exhibit 11**)

C. Break-Even Point in Housing Units:

$$\text{Contribution Margin Per Home} = \$200,000 - \$155,000 = \$45,000$$

$$\text{Break-Even Point} = \frac{\$1,050,000}{\$45,000} = 23.33 \text{ Homes}$$

- A reduction in Break-Even Point of 23 homes

D. Required Volume for Target Profit of \$1,000,000

1. Calculation:

$$\frac{\$1,000,000 + \$1,050,000}{1.00 - .775(.225)} = \$9,111,111$$

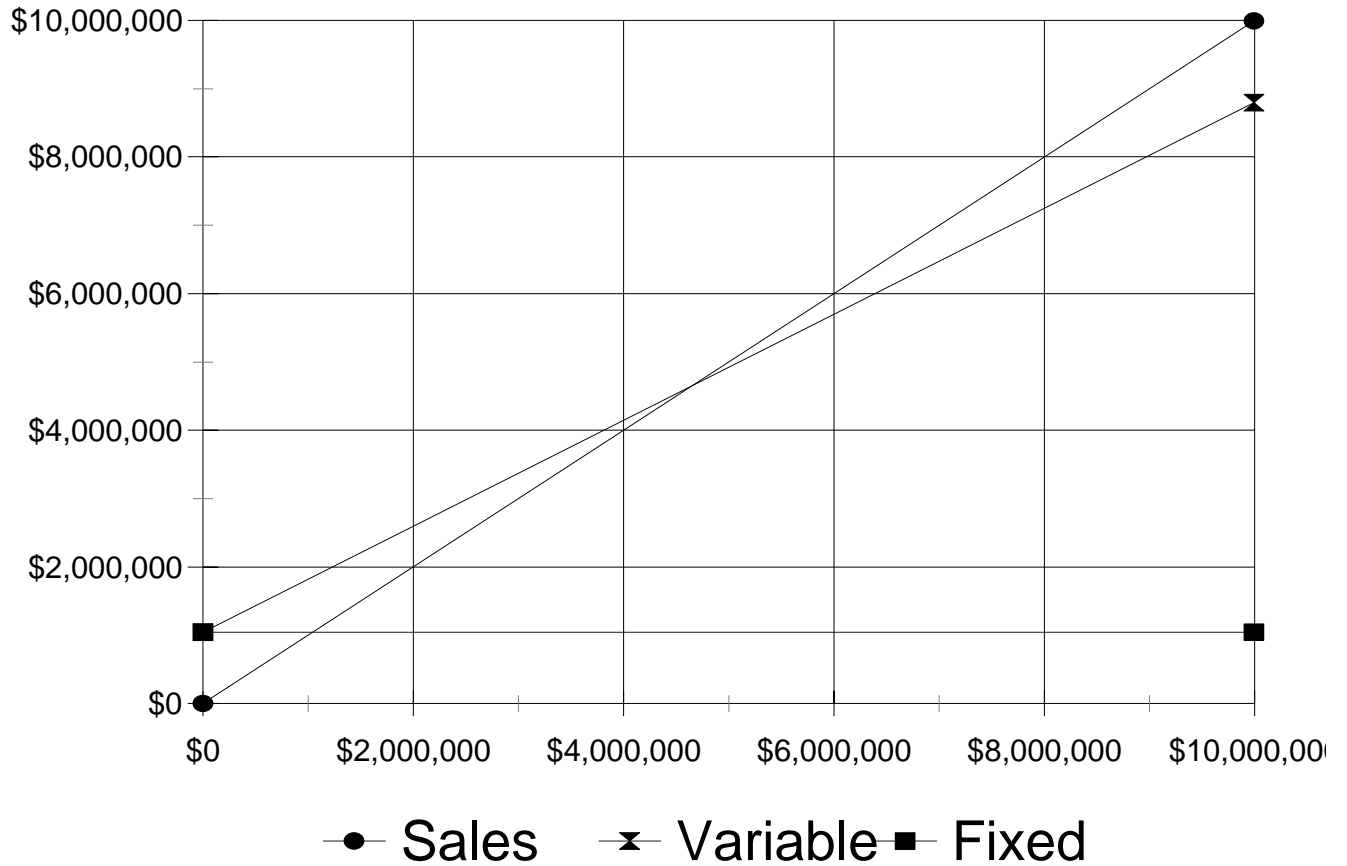
- A reduction in required volume of \$7,317,460

2. Required Number of Housing Units:

$$\frac{\$1,000,000 + \$1,050,000}{\$45,000} = 45.55 \text{ Homes}$$

- A reduction in required housing units of 36.45 homes

Exhibit 11 Target Ratios



XIX. SALES PRICE, CONSTRUCTION COST, AND OPERATING EXPENSE

IMPACT ON PROFITS

- A. The Dynamics of Sales Price Changes
1. Decisions to increase Sales Price increases the Marginal Rate of Profit.
 - Increase in Sales Price by \$1,000 for a 100 unit a year builder increases revenues by \$100,000.
 2. Increased Sales Price tends to reduce the sales velocity.
- B. The Dynamics of Construction Cost Changes
1. Reduction in Construction Costs increases the Marginal Rate of Profit.
 - The reduction of construction costs by \$1,000 for a 100 unit builder increases profits by \$100,000
 2. Reductions in construction costs typically do not impact sales velocity.
 3. Can reduce Sales Price dollar for dollar for construction cost reductions and increase the Percentage of Profit and possibly increase sales velocity.
- C. The Dynamics of Operating Expense Changes
1. A reduction in Operating Expenses **DOES NOT** increase the marginal rate of profit.
 - The reduction of operating expenses by \$1,000 will only increase the profit by \$1,000. There is no multiplier.
 2. Many builders will increase operating expenses to reduce construction costs because of the dramatic impact reducing construction costs has on Profits.

XX. SUMMARY

Break-even analysis is a fantastic tool to show the dynamics of your financial structure. It should be used as a planning tool for management when making financial decisions to show the impact of the decision on the financial structure of the company.

