

The Portable Garage Co (PCG) - Suggested Solution

(a)

Profit statement for current position:

	Division B	Division A	PGC Co
	\$'000	\$'000	\$'000
Sales revenue:			
External sales (150,000 x \$180/200,000 x \$15)	27,000	3,000	30,000
Internal transferred sales (150,000 x \$13)		1,950	
Total revenue	27,000	4,950	30,000
Variable costs:			
External material costs	6,750	1,050	7,800
Internal transferred costs	1,950		
Labour costs	5,250	1,400	6,650
Other costs of external sales		200	200
Total variable costs	13,950	2,650	14,650
Contribution	13,050	2,300	15,350
Less fixed costs	5,460	2,200	7,660
Profit	7,590	100	7,690

(b)

If Division B can buy adaptors from outside the group at \$13 per unit, then the optimum position is for Division A to sell as many adaptors as possible to external customers at \$15 each and then sell the remainder to Division B at a price to be agreed between them.

This would mean that Division A continues to sell Division B 150,000 adaptors but Division B then buys the remaining 30,000 adaptors from an external supplier. This is because the contribution per unit for Division A's external sales is \$7 (\$15 - \$3 - \$4 - \$1). This means that for every external sale it loses, it forfeits \$7 for the group. However, the incremental cost for the group of Division B buying adaptors from outside the group is only \$6 (\$13 external cost less the \$7 cost of making them in-house). So, it makes sense for Division A to satisfy its external sales first before selling internally.

(c)

In order for Division A to supply Division B with 180,000 adaptors, it would have to reduce its external sales from 200,000 units to 170,000. This is because it only has enough spare capacity to supply Division B with 150,000 units at present after it has supplied adaptors to its external customers.

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The minimum transfer price in situations where there is no spare capacity is marginal cost plus opportunity cost. In this case contribution is lost by not selling 30,000 units to the external customers. As the marginal cost for Division A's internal sales is \$7 (\$4 + \$3) and the contribution per unit for external sales is \$7 per unit (\$15 - \$3 - \$4 - \$1); the transfer price for the additional 30,000 units would need to be \$14.

Marking Scheme

Part	Sub Part		Maximum marks	Marks awarded
a		External sales - A/B	1	
a		Internal sales - A	0.5	
a		External materials - A/B	1	
a		Internal costs - B	0.5	
a		Labour costs - A/B	1	
a		Other costs - A	1	
a		Fixed costs	0.5	
a		Profit - A/B	1	
a		PGC Co figures	2.5	
b		External contribution of \$7 - A	1	
b		Incremental cost of \$6	1	
b		External sales first - A	1	
b		150,000 from A/30,000 externally	1	
b		Explanation of approach	2	
c		Minimum transfer price (marginal cost + opportunity cost)	1	
c		Opportunity cost – lost contribution of \$7	1	
c		Add marginal cost for transfer price of \$14	1	
c		Explanation of approach	2	

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The Alka Hotel - Suggested Solution

(a)

Breakeven point (in occupied room nights) = Fixed cost/contribution per room

$\$600,000/(\$180 - \$60) = 5,000$ occupied room nights

Margin of safety = (Budgeted room occupancy – breakeven room occupancy)/budgeted room occupancy

Total rooms available per annum: 365 days x 25 rooms = 9,125 rooms

Budgeted occupancy level: 9,125 x 70% = 6,387.5 rooms

Margin of safety: $(6,387.5 - 5,000)/6,387.5 = 21.72\%$

(b)

Profit or loss for Q1

	\$ 108,0
Contribution (900 rooms x \$120)	00
Fixed costs ($(\$600,000/12) \times 3$)	<u>150,000</u>
Loss	42,000

The Alka Hotel should not close in Q1. The fixed costs will still be incurred and closure would result in lost contribution of \$108,000. This in turn would result in a decrease in annual profits of \$108,000. In addition the hotel could lose customers at other times of the year, particularly their regular business customers, who may perceive the hotel as being unreliable.

(c)

Contribution/sales ratio of Project 1

	\$ 1
Sales value of two room nights (2 x \$67.50)	35
Sales value of a pair of theatre tickets	<u>100</u>
	235
Variable cost of two room nights (2 x \$60)	120
Variable cost of a pair of theatre tickets	<u>95</u>
Contribution	20

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C/S ratio (20/235) 8.51%

Breakeven point in revenue ($\$20,000/0.0851$) \$235,000

Alternatively:

Contribution per Theatre Package sold \$20

Breakeven point in Theatre Packages ($\$20,000/\20) 1,000

Breakeven point in revenue ($1,000 \times \$235$) \$235,000

The unit contribution per Theatre Package is low and it requires a large number of sales to breakeven. Each Theatre Package would require two room nights to be sold which would mean 2,000 room nights needed in Q1 to breakeven. The available rooms for Q1 are only 2,281.25 ($9,125/4$) and the Alka Hotel have already sold 900 rooms so there is insufficient capacity. Based on this Project 1 is not viable at the quoted prices.

(d)

Project 2 will cause the fixed costs of the hotel to rise from \$600,000 per annum to \$800,000 per annum for the hotel and restaurant combined. This is an annual increase of \$200,000.

Revenue per occupied room will rise from \$180 to \$250 ($\$2,000,000/8,000$ rooms) which reflects the extra guest expenditure in the restaurant.

The total cost predicted at a level of 8,000 occupied rooms is \$1,560,000 which means the variable costs must be \$760,000 ($\$1,560,000 - \$800,000$ fixed costs). This is a variable cost per occupied room of \$95 which is an increase of \$35. This reflects the variable costs of the restaurant.

As a result of these changes the breakeven point has increased from 5,000 to 5,161 occupied rooms so the hotel need to sell more room nights to cover costs.

However budgeted occupancy is now 7,300 occupied room nights which gives 80% occupancy ($7,300/9,125$). This gives a margin of safety of 2,139 occupied room nights or 29%. This is an increase on the current position and the hotel's position appears safer. At 7,300 occupied room nights the Alka Hotel's budgeted profit is \$331,500 ($7,300 \times (\$250 - \$95) - \$800,000$).

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a		Contribution	0.5	
a		BEP	1	
a		Total rooms available	1	
a		Budgeted occupancy	0.5	
a		Margin of safety %	1	
b		Profit/loss	1.5	
b		Recommendation	0.5	
b		Explanation	2	
c		C/S ratio	1	
c		BEP \$ revenue	0.5	
c		Recommendation	0.5	
c		Explanation	2	
d		Calculations	4	
d		Commentary	4	

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