

THE UNIVERSITY OF SOUTH AUSTRALIA
SCHOOL OF GEOINFORMATICS, PLANNING & BUILDING

PROGRAM: Bachelor of Construction Management & Economics
Diploma in the Built Environment

COURSE: Construction Economics

EXAMINATION: Internal Examination, Semester 2, 2001

DURATION: 10 minutes of reading time plus 2.5 hours of exam time, a total of 2 Hrs 40 Min.

EXAMINER: Tom Heinrich, Tel 8384 4895

INSTRUCTIONS TO CANDIDATES:

- This exam is worth 50% of the total course marks
- Attempt any three out of the five questions
- All questions are of equal value
- No reference materials are allowed. Calculator is allowed
- State any assumptions made

QUESTION 1.

Prepare a Developers Budget showing how much you are prepared to pay for land for an office development, based upon the following assumptions:

Office building – 6000m² FECA, 5000m² lettable area

2 Years from project inception to completion

Rental of \$200/m² p.a.

Leasing costs of 5%

Construction will cost \$1300/m² plus \$500,000 for Siteworks & car parking

Professional fees on construction – 11%

Building & planning approval fees - \$50,000

E&WS Charges - \$30,000

Land tax - \$250,000

Finance at 8% p.a. over the project period of 2 years

Developers profit – 15% of Gross Development Value

Stamp duty & fees on land purchase – 2.5%

Holding charges on land – 6%p.a.

QUESTION 2.

a) Prepare a Life Cycle Cost Analysis Comparison for carpet & vinyl floor finishes based upon the following data:

40 Year cycle, assuming 5% discount rate

Net Present Value of \$1 at year 15 – 0.48101

Net Present Value of \$1 at year 25 – 0.29530

Net Present Value of \$1 at year 30 – 0.23137

Net Present Value of \$1 p.a. over 40 years at a discount rate of 5% - 16.8142

Carpet cost - \$100,000

Vinyl cost - \$75,000

Carpet cleaning - \$2,000 p.a.

Vinyl cleaning - \$6,000 p.a.

Carpet replaced at Year 15 & Year 30

Vinyl replaced at Year 25

b) Define the term “sensitivity analysis” and discuss its importance.

QUESTION 3.

Given a cost per square metre for a previous project, discuss the factors that you would consider prior to using this rate for a new building proposal.

QUESTION 4.

Based upon the following historical record and data for a new proposal, provide an estimate for the new, similar project. Assume that the structure will be similar, the finishes will be of 10% higher quality and that the amount of fixed joinery will double.

What amount would be saved by deletion of the lift ?

	EXISTING RECORD	PROPOSED BUILDING
Building Type	C.55 - Low Rise Office - Lift	C.55 - Low Rise Office - Lift
Location	Adelaide	Adelaide
Locality Index	100	100
Tender Date	January, 1996	September, 2001
Building Price Index (DHC Index)	263.8	287.5
FECA	2625m2	3600m2
UCA	0 m2	0m2
UFA	2020m2	2520m2
Area Efficiency	80%	70%
No. of Storeys	3	3
Building Height	10.5m	10.95m
Floor/Floor Height	3.5m	3.65m
Wall Floor Area Ratio	0.48	0.55
Description	Rectangular 35 x 25 m	Rectangular 16 x 75 m
Type of Contract	Lump Sum Fixed Price	Lump Sum Fixed Price
Time for Completion	7 months	Average
Special Factors	Nil	Nil
Building Cost	\$3,022,110	
Building Rate	\$1,151.28	
Elemental Analysis		
01SB		48.00
02CL		22.00
03UF		105.00
04SC		20.00
05RF		40.00
06EW		140.00
07WW		75.00
08ED		12.00
09NW		80.00
10NS		15.00
11ND		30.00
12WF		10.00
13FF		55.00
14CF		48.00
15FT		35.00
16SE		Nil
17SF		12.00
18PD		9.00
19WS		7.00
20GS		Nil
21SH		Nil
22VE		Nil
23EC		Nil
24AC		140.00
25FP		15.00
26LP		85.00
27CM		8.00
28TS		55.00
Share of Preliminaries		85.28
Adjust for Date		-
Total Building Rate		\$1,151.28

QUESTION 5.

Based upon the drawing below calculate the following areas & ratios in accordance with the NPWC Cost Control Manual:

- a) FECA b) UCA c) Wall to Floor Area Ratio

All external walls are 280mm thick. Building height is 3.5m