

**UNIVERSITY OF SOUTH AUSTRALIA
SCHOOL OF GEOINFORMATICS, PLANNING AND BUILDING**

CONSTRUCTION AND FIRE ENGINEERING 1 (10275)

AND

**FIRE TECHNOLOGY 1 (05467)
(DISTANCE LEARNING EXAMINATION)**

Semester 1, 2000

Time for Examination: 2 hours plus 10 minutes reading time
Subject Codes: 10275/05467
Date of Examination: 26.6.00 at 2.00pm

**The use of text books, Australian Standards and Lecture notes are permitted.
You must answer ALL questions
The marks for each question are shown in brackets e.g. (40 marks), etc.**

Question 1: **(40 marks)**

A developer has provided you with sketch plans for the building illustrated in Figure 1.

Discuss the recommendations that you would make about providing fire and smoke compartments within the building.

Use diagrams to explain where you would provide the fire or smoke barriers, the materials which you would use and give your reasons for doing so.

Question 2 **(20 marks)**

For the building shown in Figure 1, you have a choice of the materials listed in Table 3 attached which you can use for floor coverings in the various areas of the building. Indicate which materials you would use in the following areas and explain why you would do so:

- the lift lobby
- the restaurants
- the shops
- corridors leading to exits

Question 3 **(20 marks)**

For the building shown in figure 1, discuss the provisions that you would use to reduce the possibility of fire spread:-

- (a) from the building to other buildings nearby, and
- (b) from storey to storey in the building itself.

You should explain the principles on which you have based your provisions.

You should also comment on how these provisions are covered by the requirements of the Building Code of Australia (BCA) where relevant.

Question 4:**(20 marks)**

If there was a fire in the building shown in figure 1, there could be some problems encountered in evacuating the people from the building.

Discuss what these problems might be, why they would occur, and what could be done to overcome them.

Table 3**Extracts from Early Fire Hazard Test Results to AS1530, Part 3**

MATERIAL	Ignitability Index	Spread of Flame Index	Heat Evolved Index	Smoke Developed Index
Acrylic Carpet: tufted contract quality	14	8	10	7
Acrylic sheet (3mm), standard grade	16	7	9	5
<u>Carpet Tiles</u>				
100% nylon, latex backed	15	7	8	8
80% wool, 20% nylon, latex backed	13	0	0	5
100% wool	13	0	0	5
Linoleum, typical quality	16	9	10	6
<u>PVC floor coverings:</u>				
- Standard (2.5mm) tiles	14	0	1	5
- High impact (2mm) tiles	15	0	4	5
- PVC sheet (3mm), standard grade	13	0	0	7
- Rubber Flooring	13	5	5	8
<u>Woollen Carpet:</u>				
- 100% wool, short pile	15	0	2	5
- 100% wool, contract quality	13	0	0	5

end.