

UNIVERSITY OF SOUTH AUSTRALIA
SCHOOL OF GEOINFORMATICS, PLANNING & BUILDING

PROGRAM: Bachelor of Construction Management & Economics
Graduate Certificate in Building and Planning

COURSE: CIVE 4009 Construction and Fire Engineering 1 - Fire component
CIVE 5032 Fire Technology 1 (05467) *for on campus students only*

EXAMINATION: Semester 1, 2003

DURATION: 2 Hours of Exam time preceded by 10 minutes of Reading time, a total of 2 Hrs 10 Mins.

For ENTEXT students , 2 hours 20 minutes of Exam time, preceded by 10 minutes of Reading time, a total of 2 Hrs 30 Mins.

EXAMINER: Graham Brown

INSTRUCTIONS TO CANDIDATES:

Write your name on the examination booklet.

You must answer all questions.

All questions and parts of questions have marks indicated in brackets e.g. (25 marks)

Maximum marks : 100.

Lecture notes and text books and Australian Standards are permitted references.

Question 1.

- (a) Discuss the roles which radiation, convection and conduction have in the spread of fire both : in and through buildings and between buildings.
(25 marks)
- (b) The possible spread of fire due to radiation, convection and conduction is recognised in the Building Code of Australia (BCA) and measures are included to reduce the effects of these. List these measures and indicate how they achieve the desired results.

(10 marks)

Question 2

Escape from a building involved in a fire is very important. Discuss the factors which must be addressed, the problems that they can cause in a fire situation, and what steps you would take to overcome these.

(25 marks)

Question 3

Building Regulations require multi-storey buildings to be separated by fire resisting construction between storeys, and around service shafts, lift shafts and stair shafts. Doorways must be fitted with fire doors and air conditioning ducts between compartments must contain fire dampers. Consequently, the ordinary person could assume that they would be safe in the event of a fire occurring in a fire separated part of such a building.

Discuss the hazards to occupants which can be presented by a fire in a multi-storey building even though the building complies with the standards for the fire resistance levels of walls, floors, doors, dampers and windows and how these hazards can be mitigated.

(25 marks)

Question 4

Fire windows are often limited in their size because of their metal frames. Discuss the main reasons for this and how you could increase the size of a fire window by the use of a different material and why this would be acceptable.

(15 marks)

End of questions