

**UNIVERSITY OF SOUTH AUSTRALIA  
SCHOOL OF NATURAL & BUILT ENVIRONMENTS**

PROGRAM(S): **Bachelor of Construction Management & Economics &  
Diploma in Built Environment**

COURSE: **CONSTRUCTION 2N (CIVE 2002)**

EXAMINATION: **Internal Exam, Semester 1, 2004**

DURATION: **3 Hours of Exam time preceded by 10 minutes of Reading  
time, a total of 3 Hrs 10 Mins.  
For ENTEXT students 10 minutes of Reading time plus 3.5  
Hours of Exam time, a total of 3 Hrs 40 Mins.**

EXAMINER: **Sam Baroudi, Tel. 8302 2234**

EXAM REVIEWED BY : **Stefan Hornlund**

INSTRUCTIONS TO CANDIDATES:

- This exam is worth 50% of the total course marks
  - All questions are of equal value.
  - Attempt to answer **five (5) questions only**. You may illustrate your answer with carefully drawn sketch details suitably annotated.
  - No reference materials are allowed.
  - State any assumptions made
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NOTES FROM EXAMINER:

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**Question 1**

**(20 Marks)**

The construction company you work for has been awarded a major contract for a new five storey office building in the city with work set to commence in three weeks time. The construction manager requests you undertake a site investigation and report back on critical issues that may affect the commencement of works. Describe what this site investigation entails in respect to this project making reference to the following :

- a. The purpose of the investigation.
- b. List typical items that should be investigated.
- c. Explain the importance of each item.
- d. How would you investigate each of these items?

**Question 2****(20Marks)**

Nominate a structural framing system of your choice to suit an industrial building application and discuss the following in regard to it.

- a. Explain the framing system chosen, including a diagram to illustrate it.
- b. Outline the advantages and disadvantages of the system.
- c. Does the structure require bracing and what would you recommend if so?
- d. What would be the most economic means of cladding this building and what would be typically involved in this work?

**Question 3****(20 Marks)**

Your client is in the midst of planning for their new heavy engineering workshop. They have asked you to advise in respect of considerations for the factory's concrete floor slab. What suggestions could be made noting the following areas?

- a. Design aspects that should be checked.
- b. Common floor failures in slabs.
- c. Typical joint types using diagrams to illustrate.
- d. Common finishes and how they are provided.

**Question 4****(20 Marks)**

Concrete walling is commonly used to enclose many and varied building types. Answer the following in respect of tilt-up, precast and in-situ concrete wall construction as applied to industrial and low rise commercial buildings.

- a. Define each of these walling types.
- b. Explain the differences in construction between each of these.
- c. State the advantages and disadvantages of each type.
- d. Which would be your choice based on economics alone?  
Give your reasons why.

**Question 5****(20 Marks)**

The considerations made in respect to possible framing systems and floor systems in the construction of a multi-storey building can sometimes require building professionals to investigate various alternatives and their benefits. With this in mind answer the following questions.

- a. Discuss framed construction as compared to load bearing wall construction. Which of these would you suggest for a new high rise office complex and why?
- b. Compare steel framed buildings to concrete framed buildings, discussing advantages and disadvantages of each.
- c. Offer suggestions in respect of floor systems to suit the above-mentioned framing systems. Briefly describe their characteristics.
- d. Nominate a multi-storey framing/floor system and describe how you would construct it.

**Question 6****(20 Marks)**

Answer only four (4) of the following questions in respect to industrial/commercial buildings. All are of equal value. Clearly indicate which questions are being answered.

- a. What do you understand in reference to “plywood webbed beams” in respect of proprietary timber products? Give an example of their use.
- b. What is reinforced masonry construction and elaborate on it’s construction in general building works? Where could it be used?
- c. Briefly outline examples of lightweight and heavyweight cladding systems used in multi-storey building construction differentiating between the two types.
- d. What selection criteria should be taken into account when choosing a roofing system to suit the needs of a supermarket roof?
- e. What considerations need to be addressed in partition design and what do you understand by the term "borrowed lights" in relation to this area?
- f. Explain the difference between exposed grid and concealed grid ceilings as typically used in commercial buildings. Which would provide better access to the “floor zone” and why?

END OF QUESTIONS

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**PROGRAM:** Bachelor of Construction Management & Economics (Hons)  
Graduate Certificate in Building & Planning

**COURSE:** Construction & Fire Engineering 1N (Construction part of CIVE 4009)  
Building Construction & Materials 6 (BUIL 5010) (Formerly 05475)

**EXAMINATION:** Internal Exam, Semester 1, 2004

**DURATION:** 2 Hours of Exam time preceded by 10 minutes of Reading time, a total of **2Hrs 10 Mins**.  
For **ENTEXT** students 10 minutes of Reading time plus 2Hrs & 20Mins of Exam Time ie a total of **2Hrs 30Mins**

**EXAMINER:** Assoc Prof George Zillante (Tel 22379)

**REVIEWER:** Jeremy Coggins

**INSTRUCTIONS TO CANDIDATES:**

- This exam is worth 50% of the construction component of the course
- You **MUST** answer **question 1** and any two of the remaining 3 questions so that a total of 3 questions is answered.
- The value of each question is noted adjacent to the question
- Open Book Examination ie all references permitted

**NOTES FROM EXAMINER: Nil**

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**Question 1 (COMPULSORY) (50 Marks)**

A Developer is proposing to construct a 19-storey residential apartment building on North Terrace, the major Boulevard flowing through the City of Adelaide. You have been approached to tender for the project and, as part of the tender, you are required to submit a report on the following:

- What cladding system you would use and why? **(10 Marks)**
- What cladding material you would use and why? **(10 Marks)**
- What type of roofing system and material you would use and why? **(10 Marks)**
- What type of stormwater disposal system you would use and why? **(10 Marks)**
- What Intelligent Technologies you would use in the building and why? **(10 Marks)**

Prepare a report which addresses the five points listed above.

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**Question 2 (25 Marks)**

Discuss what you understand to be the three most critical issues that need to be considered when selecting a cladding system and cladding material for a multi-storey building. Illustrate your answer with examples.

**Question 3 (25 Marks)**

Discuss the roofing and ceiling system that you would recommend for a building to house Melbourne's new indoor Commonwealth Games swimming pool.

**Question 4 (25 Marks)**

Discuss what you understand to be the three most important advantages that the adoption of 'constructability' can provide to major construction projects. Illustrate your answer with examples.

**END OF QUESTIONS**

**(TOTAL MARKS AVAILABLE IS 100)**