



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination 2025

Construction Studies

Theory - Ordinary Level

(200 marks)

Friday, 13 June
Afternoon, 2:00 - 4:30

- (a) Answer **any four** questions.***
- (b) All questions carry equal marks.***
- (c) Answers must be written in ink.***
- (d) Drawings and sketches are to be made in pencil.***
- (e) Write the number of the question distinctly before each answer.***
- (f) Neat freehand sketches to illustrate written descriptions should be made.***
- (g) The name, sizes, dimensions and other necessary particulars of each material indicated must be noted on the drawings.***

Do not hand this up.

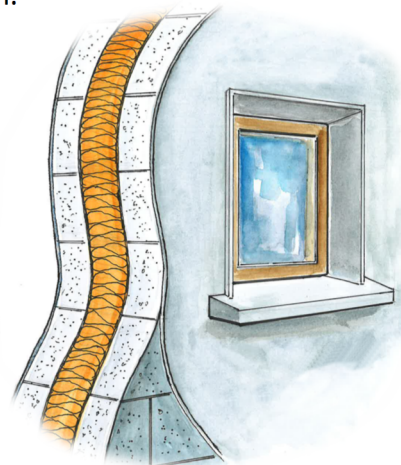
**This document will not be returned to the
State Examinations Commission.**

1. The sketch shows the external wall and window of a dwelling house. The wall is a 400 mm concrete block wall with full-fill insulated cavity and is plastered on both sides. The fixed frame of the window is 120 mm × 80 mm and is thermally broken.

- (a) To a scale of 1:5, draw a vertical section through the external wall and top portion of the window. Show the wall, the concrete lintels, and the top fixed frame of the window. On your drawing, show the typical construction details from a level 400 mm below to a level 400 mm above the concrete lintels.

Include **three** typical dimensions on your drawing.

- (b) On your drawing, show the typical design detailing that prevents the penetration of rainwater at the window head.



2. The sketch shows a living area with a sloped ceiling under construction. The homeowners wish to have a high level of insulation in the sloped ceiling.

- (a) Discuss **two** advantages of highly insulating the sloped ceiling of the living area.
- (b) Using notes and freehand sketches, show **one** suitable method of highly insulating the sloped ceiling. Show on your sketch how the ceiling is to be finished internally. Specify the type and thickness of insulation.
- (c) Using notes and a freehand sketch, suggest **one** feature which could be included in the sloped ceiling to allow additional natural light into the living area.



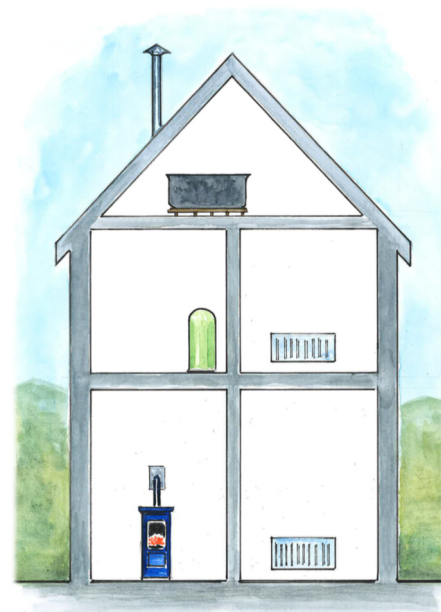
3. A wood pellet stove is used to heat radiators and supply hot water in a dwelling house.

- (a) Draw a large freehand sketch of the given house and, on your sketch, show the pipework necessary to supply **hot water** from the stove to the radiators and to heat the water in the cylinder.

Include the following in your sketch:

- wood pellet stove
- hot water cylinder
- pipework to and from the cylinder
- expansion tank / vessel
- pipework to radiators
- all necessary pumps and valves.

- (b) Discuss **one** advantage of installing a zoned heating system so the radiators and hot water can be heated separately.

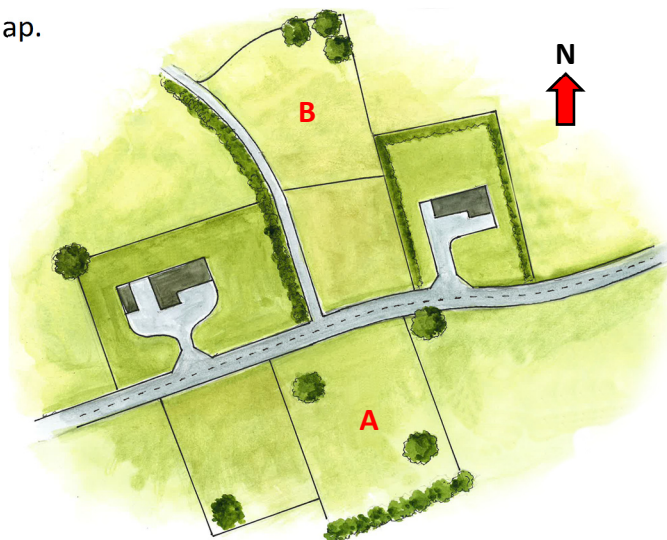


4. The image shows a portion of a site location map. **A** and **B** are two sites being considered for a new dwelling house in the countryside.

- (a) Select your preferred site **A** or **B**, and give **two** reasons for your choice.
- (b) Draw a large freehand sketch of your chosen site.
On your sketch include your preferred:

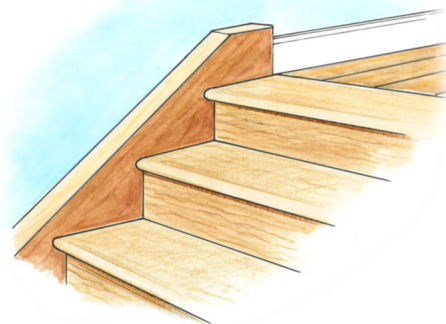
- house position
- entrance to the site
- driveway to the house.

- (c) Give **one** advantage and **one** disadvantage of building a house in the countryside.



5. The sketch shows portion of a closed string wooden stairs and first floor landing. The rise of each step is 170 mm. The landing has a 20 mm tongue and groove floor on 225 mm × 50 mm timber joists.

- (a) To a scale of 1:5, draw a vertical section through the centre of the top **three** steps of the stairs and the landing. Show the steps, trimmer joist, and a portion of the landing.
Show 600 mm length of the landing.
Include **three** typical dimensions on your drawing.



- (b) On your drawing, show **one** design detail which will ensure that the stairs will not creak when in use.

6. (a) Using a large freehand sketch, show the safety sign for **each** of the following personal protective equipment (PPE) items:

- high-visibility vest
- safety boots
- ear defenders.

Give **one** specific reason why each item of personal protective equipment must be worn.

- (b) Describe **two** potential risks to construction workers when working at height on a construction site.
- (c) Using notes and freehand sketches, describe **one** safety measure that should be in place to ensure construction workers can safely access a roof when installing solar panels.



7. A draft design for a garden office room is shown. The office room is of timber frame construction and has an exterior timber decking.

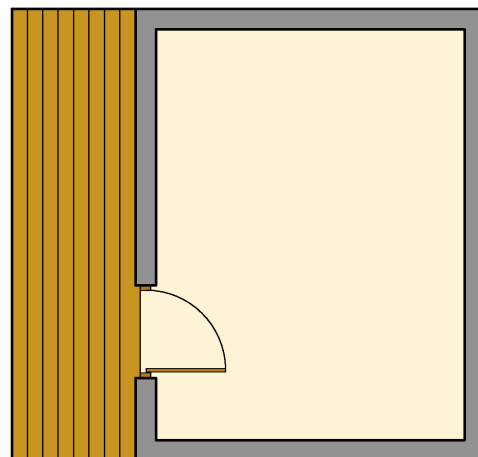
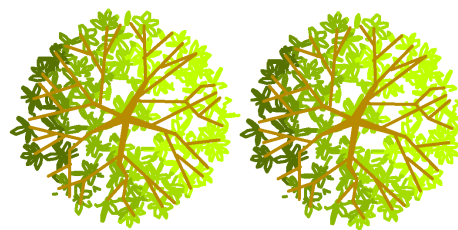
(a) Discuss **two** advantages of using timber frame for the construction of the garden office.

(b) Draw a large freehand sketch of the given design and show your preferred location for **each** of the following in the garden office:

- corner desk
- two windows
- bookcase unit
- seating area.

Give **one** reason for selecting **each** location.

(c) Discuss **one** advantage and **one** disadvantage of constructing a garden office separate from the home.



8. Explain, with the aid of notes and freehand sketches, any **five** of the following:

- | | | |
|-------------------|-----------------|---------------------|
| • raft foundation | • housing joint | • rainwater butt |
| • stud wall | • laser level | • damp-proof course |
| • door threshold | • baluster | • room thermostat. |

9. The sketch shows the rear of a 1970's bungalow. The bungalow overlooks a large rear garden. The homeowners wish to make better use of their large garden by adding an outdoor dining/living space.

(a) Discuss **two** reasons why the homeowners wish to create an outdoor dining/living space.

(b) Using notes and freehand sketches, show **two** possible modifications that could be made at the rear of the house that would allow for the following:

- access to the garden from the house
- an outdoor dining/living space.

(c) Discuss **two** other possible family uses of a large garden.

