

**UNIVERSITY OF SWAZILAND
FACULTY OF HEALTH SCIENCES**

**BACHELOR'S DEGREE IN ENVIRONMENTAL
HEALTH SCIENCES**

MAIN EXAMINATION PAPER DEC 2013

- TITLE OF PAPER** : BUILDING CONSTRUCTION
TECHNOLOGY I
- COURSE CODE** : EHM 201
- DURATION** : 2 HOURS
- MARKS** : 100
- INSTRUCTIONS** : ANSWER ANY FOUR QUESTIONS
- : EACH QUESTION CARRIES 25 MARKS
- : NO PAPER SHOULD BE BROUGHT INTO NOR
OUT OF THE EXAMINATION ROOM
- : BEGIN EACH QUESTION ON A SEPARATE
SHEET OF PAPER

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS
GRANTED BY THE INVIGILATOR**

QUESTION ONE

- a) What is the meaning of the following terms used in concrete:
- i. Consistence. [2]
 - ii. Plastic shrinkage. [2]
 - iii. Loss of consistence. [2]
 - iv. Workability. [2]
 - v. Settlement and bleeding. [2]
- b) State five advantages of burnt clay bricks [10]
- c) By means of a simple sketch summarize the five uses of a profile board [5]

QUESTION TWO

- a) According to Mike Riley and Alison Cotgrave (2008), house design and construction need to take into account certain sustainability principles. Name and discuss these principles? [8]
- b) Sketch out a column and a beam to demonstrate your understanding of the differences between the tensile and compressive strength of Concrete. [3]
- c) You have been appointed as a site manager for a huge construction project. State at least twelve (12) issues important to you for the smooth running of your construction site. [12]
- d) What is the standard height for a course of bricks and a course of blocks [2]

QUESTION THREE

- a) The following diagram overleaf (**figure 1**) shows a single storey building. Describe the type of foundation used and reason for the foundation type chosen. [5]
- b) According to Macmulan (2007) six factors determine features of a building. Please state these factors and discuss how each factor gets mitigated to determine features of a building. [12]

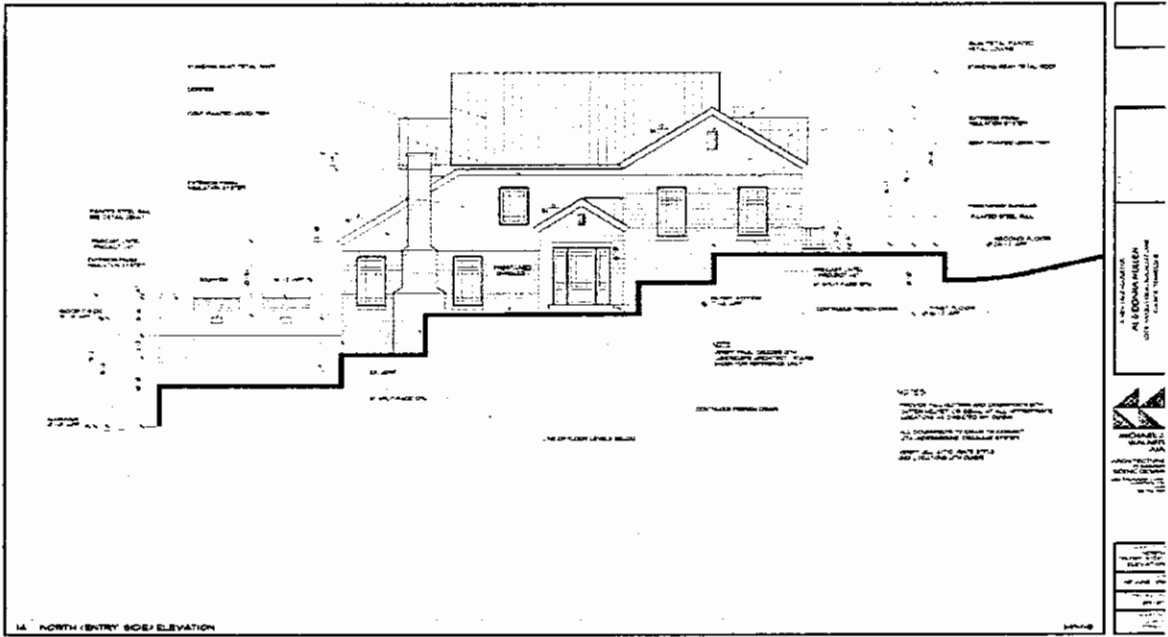


Figure 1

- c) Render and timber are two building materials that require delicate protection. Explain why this is so and give at least three ways in which timber and render can be protected [3]
- d) The following shows components of a solid ground floor and part of a wall. Explain the importance of each component [5]

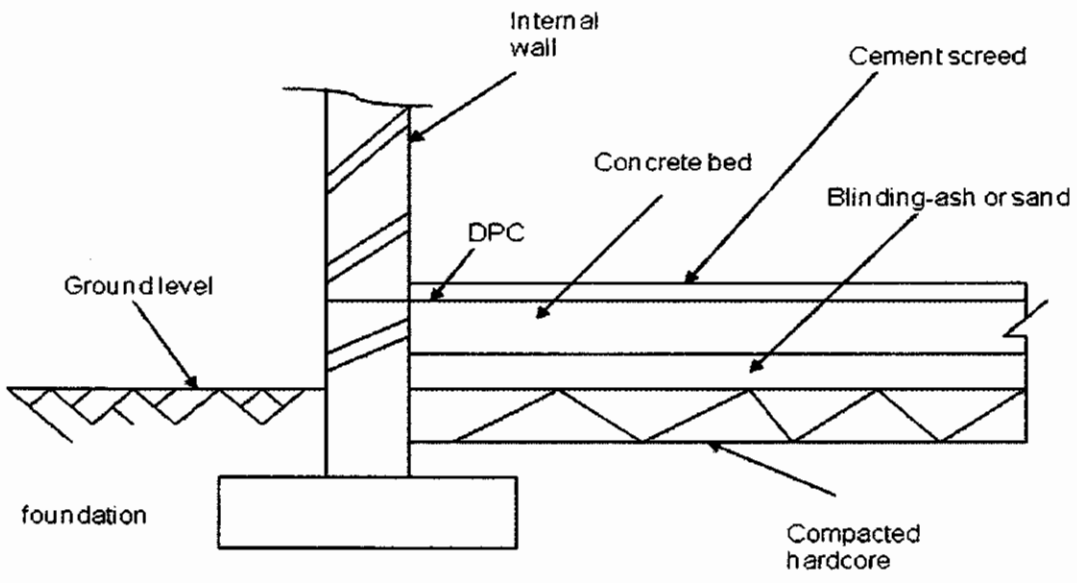


Figure 2

QUESTION FOUR

- a) Define the term mass concrete [1]
- b) With reference to foundations, it is normal that shortly after the construction of a building some consolidation of the soil takes place resulting in minor settlement. What could cause major differential settlement in a house resulting in cracks and deformation of the building? [10]
- c) Argue as to which type of a foundation would be suitable for a two bedroom dwelling in an area of filled ground. [8]
- d) With the aid of a simple diagram distinguish between Flemish bond and English bond [3]
- e) What is the value of “Eco Labelling” in building construction? [3]

QUESTION FIVE

- a) Draw and label fully all parts and dimensions of a brick. [6]
- b) Draw and label the different types of roofs you know. [10]
- c) What is the utility of doors and windows in a building? [4]
- d) Below (fig 3) is a trussed rafter. Name two internal components of a trussed rafter. Why might developers opt for rafter and purlins construction [5]

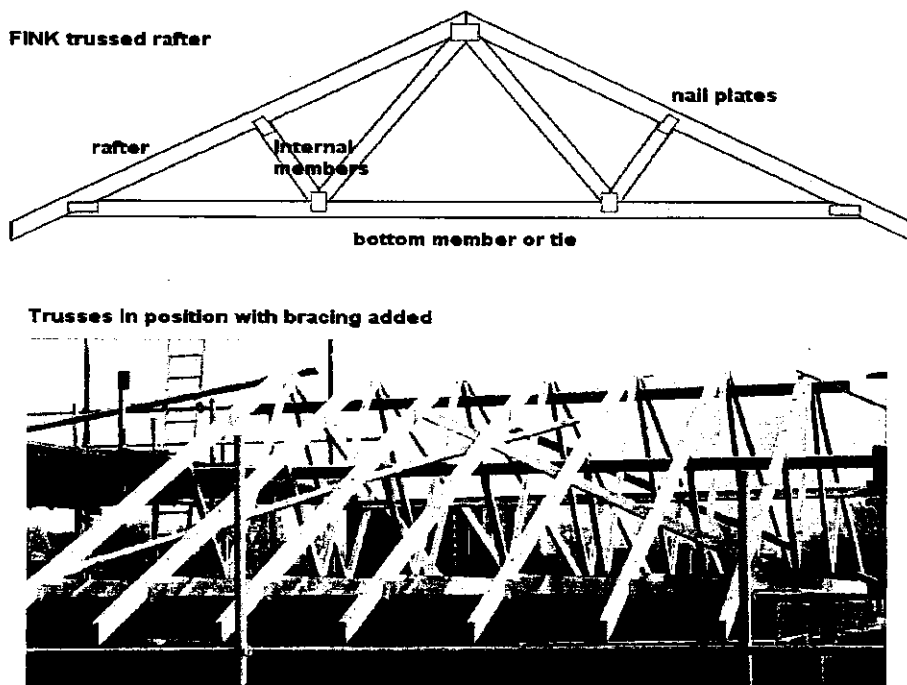


Figure 3