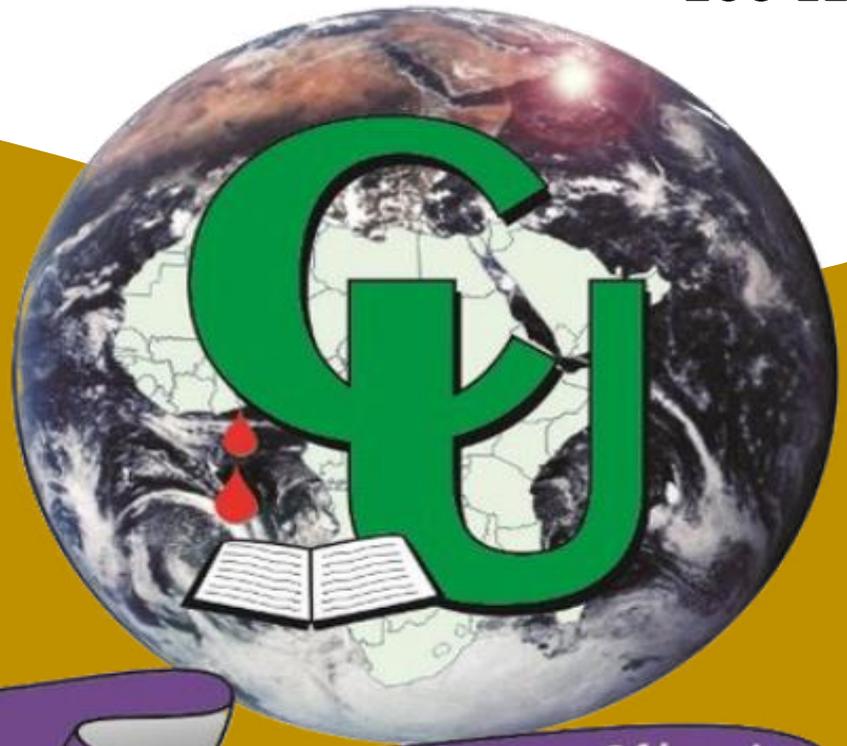


COVENANT UNIVERSITY

OMEGA SEMESTER TUTORIAL KIT
(VOL. 2)

PROGRAMME: ARCHITECTURE
100 LEVEL



Raising A New Generation Of Leaders

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LIST OF COURSES

ARC123: Basic Elements of Urban Planning and Environmental Sciences

ARC124: Graphics & Descriptive Geometry for Surveyors

***Not included**



COVENANT UNIVERSITY

CANAANLAND, KM 10, IDIROKO ROAD
P.M.B 1023, OTA, OGUN STATE, NIGERIA.

TITLE OF EXAMINATION: B.Sc. EXAMINATION

COLLEGE: SCIENCE & TECHNOLOGY

SCHOOL: ENVIRONMENTAL SCIENCES

DEPARTMENT: ARCHITECTURE

SESSION: 2015/2016

SEMESTER: OMEGA

COURSE CODE: ARC 123

CREDIT UNIT: 2

COURSE TITLE: BASIC ELEMENTS OF URBAN PLANNING & ENV. SCIENCES

INSTRUCTION: ANSWER ANY 3 QUESTIONS (AT LEAST ONE FROM EACH SECTION)

TIME: 2 HOURS

SECTION A

1. (a) Define the term human settlement. Differentiate between the three categories of human settlement according to population size. **(9.5 marks)**
 - (b) Explain how the following factors led the early man to live in a settled habitation:
 - (i). 'Rotation instead of shifting cultivation'.
 - (ii). 'Food surplus' **(6 marks)**
 - (c) Discuss four (4) reasons early man preferred sites that were protected by rivers or elevated terrains. **(8 marks)**

2. (a) What are the main purposes of open spaces? **(5 marks)**
 - (b) Urban and Regional Planning is said to be difficult to define, state the reasons and the features. **(8 marks)**
 - (c) In your own understanding, explain section 3 of the 1946 ordinance. **(5.5 marks)**
 - (d) Explain the Decree No.3 established by the Town Planners Registration Council (TOPREC). **(5 marks)**

3. (a) Explain three (3) reasons that led to the settlement of early man in permanent habitation. **(6 marks)**
 - (b) List five (5) factors that led to birth of urban settlements. **(10 marks)**
 - (c) Explain three (3) traits that come to the fore when a settlement is about to develop into a community structure. **(7.5 marks)**

SECTION B

4. (a) What are the objectives of Urban and Regional Planning? **(7 marks)**
 - (b) List the six (6) components of physical planning **(3.5 marks)**
 - (c) Explain the rationale of planning. **(6 marks)**

- (d) Report the Land use Decree No. 6 of 1978 **(7 marks)**
5. (a) What is a transportation system? Discuss three (3) methods by which transportation systems accelerate urban and regional planning. **(9.5 marks)**
- (b) From your knowledge of evolution of human settlement, explain briefly the factors that led to the development of fortified castles and walled communities. Mention two (2) examples of walled cities. **(6 marks)**
- (c) Define the term civilization. Explain three (3) characteristics of a civilized society. **(8 marks)**



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SESSION: 2015/2016 **SEMESTER:** OMEGA
COURSE CODE: ARC 123 **CREDIT UNIT:** 2
COURSE TITLE: BASIC ELEMENTS OF URBAN PLANNING & ENV. SCIENCES
INSTRUCTION: ANSWER ANY 3 QUESTIONS (AT LEAST ONE FROM EACH SECTION)
TIME: 2 HOURS

MARKING GUIDE

SECTION A

1. (a) Define the term human settlement. Differentiate between the three categories of human settlement according to population size. (9.5 marks)

Definition (2 marks)

Human settlement is a permanent or temporary community in which people live or have lived, without being specific as to size, population or importance.

Three categories of human settlement (1.5 marks each)

- Hamlet: A hamlet is a small settlement, too small to be considered a village. (1.5 marks)*
- Village: A village is a clustered human settlement or community, larger than a hamlet. (1.5 marks)*
- Town: Any human settlement larger than a village but smaller than a city with population ranging from a few hundred to several thousands. (1.5 marks)*

- (b) Explain how the following factors led the early man to live in a settled habitation: (6 marks)

(i). 'Rotation instead of shifting cultivation'. (3 marks for any three points)

- Early man moved to new location after experiencing decrease in fertility on another land due to prolonged use.*
- Through the process of shifting, he learnt that land regained fertility when left uncultivated for years.*
- Thus, early man began to cultivate land by rotation.*
- This enabled him to abolish shifting practice and settle down in a permanent place.*

(ii). 'Food surplus' (3 marks for any three points)

- Early man learnt that 'night soil' and animal droppings make good manure.*
- Deployment of this greatly increased food production.*

- As food became abundant, health of people improved.*
- Consequently, death rate dropped, birth rate increased and population of many settlements began to multiply rapidly through the natural process.*
- Thus, assured food supply encouraged man to permanently settle by the side of fields he cultivated. (3 marks)*

(c) Discuss four (4) reasons early man preferred sites that were protected by rivers or elevated terrains. (8 marks)

- The rivers provide him water for agricultural purposes. (2 marks)*
- The rivers also provide him water for domestic use. (2 marks)*
- Elevated terrains provide him security from wild animals. (2 marks)*
- Elevated terrains put him in a vantage position against enemies advance. (2 marks)*

2. (a) What are the main purposes of open spaces? (5 marks)

The main purposes of open spaces are:

- *Provision of recreational opportunities.*
- *Protection, preservation and enhancement of biodiversity, conservation, habitat and heritage places.*
- *Protection and enhancement of landscapes and amenity.*
- *Educational scientific and other research opportunities.*
- *Provision and management of utilities and services.*
- *Ensuring opportunities exist to meet unforeseen needs*
- *Contribution to the liveability and appeal of municipality for residents and visitors.*

(b) Urban and Regional Planning is said to be difficult to define, state the reasons and the features. (8 marks)

Planning is a way of doing things; a fore thought of preconceived decision. Planning is difficult to define because it means different things to different people. Town planning is called by several names such as Town and Country Planning, Urban and Regional Planning, Urban Planning, Land Use Planning, Spatial Planning, etc. It is not easy to define Urban and Regional Planning. There are two reasons for this.

- (i) *The discipline has not fully evolved to the level where a convenient definition can be offered.*
- (ii) *The discipline is continually responsive to changes in stages or epochs of human civilization and progressive well as spatial development.*
However, all types of planning especially Urban and regional Planning have some defining features known as commonalities which are:

- a) *The existence of a problem. All planning exercise are designed to solve problems.*
- b) *A goal to be set and achieved.*
- c) *A provision of alternative design, a desired to achieve a desired future state.*
- d) *A choice among the alternatives provided. This is usually the best among the alternatives.*

Originally, the purpose of planning was to create an aesthetically pleasing environment through control over physical layouts, especially in urban areas. The reform in the early stages of planning as a discipline led to the pursuit of rationality.

(c) In your own understanding, explain section 3 of the 1946 ordinance. (5.5 marks)
The objectives of town planning as detailed in section 3 of the ordinance were as follows:

1. *To control development of the use of land*
2. *To secure proper sanitation, amenities and conveniences*
3. *To preserve places of national beauty and interests*
4. *To protect existing urban and rural amenities*

The law provided that town planning authorities to prepare planning schemes with a view to control land-use and secure proper sanitation, amenity and convenience and also preserve the aesthetic quality of towns. It also provides the coordination and facilitating the construction of public utilities and services.

- (d) Explain the Decree No.3 established by the Town Planners Registration Council (TOPREC). (5 marks)

Town planning in Nigeria recorded a boost in 1988 with the promulgation of Decree No.3, established the Town Planners Registration Council (TOPREC). The council inaugurated on 30th November of the same year. The council is to regulate and control the practice of Town and Country Planning in Nigeria. They are to determine the standard of planning education and set the criteria for registration as a Town Planner in Nigeria.

3. (a) Explain three (3) reasons that led to the settlement of early man in permanent habitation.

(6 marks)

- *He developed the skills for basic agriculture (2 marks)*
- *The need to protect himself from attacks from wild animals and inclement elements of weather (2 marks)*
- *He invented the skills to build huts and mud houses (2 marks)*

- (b) List five (5) factors that led to birth of urban settlements. (10 marks)

- i. *Labour specialization*
- ii. *New occupations – lawyers, engineers, bankers, e.t.c.*
- iii. *New class of people – philosophers, scientists, architects*
- iv. *Distinct social classes*
- v. *Non-agricultural jobs (white collar) expanded at a faster rate.*
- vi. *Invention of new means of transportation*
- vii. *Expansion of trade*
- viii. *Merchants organized themselves in the form of guilds.*
- ix. *Development of art and literature*
- x. *Acquisition of wealth and knowledge*
- xi. *General sense of appreciation of civic duties.*
- xii. *Continued structural transformation over subsequent civilizations and cultural phases. (2 marks each)*

- (c) Explain three (3) traits that come to the fore when a settlement is about to develop into a community structure. (7.5 marks)

1. Division of Labour

- As food became abundant, not every inhabitant had to work on the fields.*
- Others began to practice various occupations e.g. weavers, potters, makers of tools, weapons, painters, etc.*

2. Trade by Barter

- ❑ *Most ancient form of trading.*
- ❑ *Those who were not farmers were supplied food in exchange for goods they produced.*
- ❑ *Initially, trading was intra-community but exchange of goods became inter-community as river and land transportation routes developed.*

3. Social Stratification

- ❑ *Traders emerged as new class of people, trading as a new occupation and market as the new physical component of settlements.*
- ❑ *Traders were probably mostly hunters who were already used to travelling and also provided protection for the community.*
- ❑ *They accumulated wealth and knowledge through their trading activities and contact with others in their travels.*
- ❑ *The trading hunter's became influential and powerful, thus naturally transforming to a chieftain in the community.*

SECTION B

4. (a) What are the objectives of Urban and Regional Planning? (7 marks)

The objectives of planning include

1. *The establishment of a harmonious relationship between the areas to be devoted to varying spatial uses like residential, commercial, industrial etc.*
2. *Providing for an orderly and planned development of an urban area for now and the foreseeable future.*
3. *Satisfying the divorced needs of the community without competition, frustration and conflicts,.*
4. *Promoting strong urban and regional economies.*
5. *Helping the inhabitants of the cities to develop social relationship and cohesion and a sense of belonging to the community.*

We must attempt to minimize the misuse, to prevent the abuse, to regulate the disuse and to guide the reuse of land so as to prevent urban disaster like flood, drought, erosion etc.

- (b) List the six (6) components of physical planning (3.5 marks)

Physical planning has six components: (1) Residential, (2) Industrial, (3) Commercial, (4) Public Institution, (5) Recreational Facilities, (6) Transportation/Circulation, (6) Open space

- (c) Explain the rationale of planning. (6 marks)

The rationale for planning includes:

1. *Minimization of distance between residence to activities – work, recreation, shopping, etc.*
2. *Grouping of related activities that are mutually related and separation of those mutually exclusive.*
3. *Maximization of resource usage.*
4. *Achievement of pleasant environment for humanity.*

Therefore, we can say that a planner enforces the level of control over the uses of land to ensure orderliness, convenience, efficiency of spatial economy. The rationale for planning is borne out of the fact that a complex space relationship seems to have developed over time due to inadequate planning mechanism, uncontrolled human and physical growth and implementation of laudable policies that are related to the environment.

- (d) Report the Land use Decree No. 6 of 1978 (7 marks)

The promulgation of the Land use Decree No. 6 of 1978. The decree was designed to curb land speculation, ease the process of land acquisition by government, coordinate and formulate tenure modernization. The decree however, has several effects on the practice of Town and Country planning. For instance, contrary to the provision of the Town and Country Planning Law, encouraging the preparation of planning schemes, there are no provisions in the Land Use Decree that a state should cause the preparation of master plan or layout in a designated urban centre. Consequently, private lands are sold out without proper supervision by Town Planning Authorities that are reduced to inconsequential building approval offices, which are poorly funded and inadequately staffed. Furthermore, section 3 (a and b) of the Decree provides for the membership of Estate Surveyor of Land offices and Legal Practitioners but not for Town Planners on the Land Use and allocation Committee to be set up for the up for the urban centres. Development control was therefore further hampered by the promulgation of the Act. There are no cadastral or township maps, topographical maps and land use plan for most Nigeria settlements. Appropriate charting and coordination of proposed development into the existing urban structure are greatly affected. Equally, effective monitoring of the growth and development of cities made impossible since individuals are still buying and selling land for residential home, commercial, industrial etc. construction on large scale.

5. (a) What is a transportation system? Discuss three (3) methods by which transportation systems accelerate urban and regional planning. (9.5 marks)

Definition

Transportation systems are a fundamental part of logistics and planning which consists of the means and equipment necessary for the movement of passengers or goods from one location to another. (2 marks)

Methods by which transportation systems accelerate urban and regional planning (2.5 marks for any three)

i. *Facilitates movement:*

- *Journeys into, out of and within a region is done through various means via different routes.*
- *Thus, the various means/modes of transport are the sole facilitator of movement.*
- *While the network and the vehicle remain the means through which access to various activity areas are made. (2.5 marks)*

ii. *Facilitates socio-economic interactions:*

- *Transportation through various modes of promotes movements.*
- *These movements usually have economic implications and results in increase in social interactions.*
- *For instance, people settle down along traffic routes.*

iii. *Promotes regional integrations:*

- *Transport network is a system through which parts are integrated into whole e.g. the introduction of the rail lines in Nigeria to connect the north to the sea ports in the south (1912 and 1927), resulted in greater exchange of imported and exported goods giving impetus to diversifications and production of crops.*
- *These two regions have been integrated into a whole through this mode (rail) for both goods and people.*

iv. *Increases spatial distribution:*

Transport have in many instances decided the pattern of population and land use distribution e.g. road network in our urban centres provide for the movement of automobiles and pedestrians.

- (b) From your knowledge of evolution of human settlement, explain briefly the factors that led to the development of fortified castles and walled communities. Mention two (2) examples of walled cities.

(6 marks)

Factors that led to the development of fortified castles and walled communities (1 mark each for any four articulated points = 4marks)

- The community was divided between the rich and the poor and the two social classes occupied different sections of the settlements.*
- The poor occupied quarters on the periphery while The chieftain built for himself a castle which towers above every other buildings and at the highest point within the village.*
- The rich and the poor gradually became antagonist of each other.*
- Therefore, man who originally learnt to ward-off danger from beast and wild animals now was afraid of being attacked by fellow human beings.*
- Thus, the rich became defensive of their life and property; built a wall around their castle and thus created fortified castles.*
- Strife between people of the same settlement was later supplemented by people of different settlements.*
- The rich settlements were at the risk of being raided by outsiders.*
- Wall was then built around the settlement in addition to the one that was already built around the castle.*

Example: (1 mark each for any two = 2 marks)

China Wall, Zaria City Wall, Berlin Wall

- (c) Define the term civilization. Explain three (3) characteristics of a civilized society.

(8 marks)

- Civilization is a system of transforming from a crude way of doing things to a more refined way. (2 marks)*
- Civilized societies were characterized by:*
 - i. Common Language: Man developed a kind of common language. (2 marks)*
 - ii. Art: Man also developed new skills in art to create carvings, engravings and paintings. (2 marks)*
 - iii. Technology: He learned the use of metals and acquired an array of new implements. (2 marks)*
- He deployed these implements to make bigger houses, temples and tombs.*



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COLLEGE: SCIENCE AND TECHNOLOGY

DEPARTMENT: ARCHITECTURE

SESSION: 2015/2016

SEMESTER: OMEGA

COURSE CODE: ARC124

CREDIT UNITS: 2

COURSE TITLE: GRAPIC COMMUNICATION AND DESCRIPTIVE GEOMETRY FOR ESTATE MANAGEMENT (II)

INSTRUCTION: YOU ARE REQUIRED TO ANSWER ANY 1 (ONE) QUESTIONS IN SECTION I AND 2 (TWO) IN SECTION II

DO NOT WRITE YOUR NAME ON YOUR TITLE BLOCK. IT SHOULD BEAR ONLY YOUR MATRICULATION NUMBER.

TIME: 2 HOURS

SECTION I

- (a) Using scale 1:100, draw the plan of
 - a quarter turn staircase of width 1 metre and tread 300mm having 10 stairs in each flight.
 - a half-turn staircase of width 1.2 metres and tread 270mm having 8 stairs in each flight(15 marks)
 - (b) Sketch how to represent the following materials on a building floor plan or section
 - glass
 - concrete
 - wood
 - earth
 - hardcore(15 marks)
2. Using scale 1:50 you are required to draw the floor plan in Figure 1 showing all the full dimensions. All the walls are 230mm thick. (30 marks)

SECTION II

- (a) You are required to sketch neatly and label the numbered parts of the building section Y- Y shown in Figure 2. (10 marks)
 - (b) Using neat and well labelled sketches show the plan, 1 section and 2 elevations each of any two roof types known to you. (10 marks)
4. Use Figure 3 to answer the following questions
- Supply dimensions a to j.

- (b) What scale was used for the drawing?
- (c) Identify the building element labelled A.
- (d) The lines B represents _____ while C represents _____
- (e) Component D is a _____, while E is a _____
- (f) The space labelled F is a _____ and G is a _____
- (g) The line Q-Q is a _____
- (viii) The elements H and I are _____

5. Draw the block shown in figure 4 in isometric projection using a scale of 1:2. The given dimensions are in millimetres.

(20 marks)



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MARKING GUIDE

SECTION I

1. (a) Using scale 1:100, draw the plan of
- a quarter turn staircase of width 1 metre and tread 300mm having 10 stairs in each flight.
 - a half-turn staircase of width 1.2 metres and tread 270mm having 8 stairs in each flight
- (15 marks)

- For getting the scale correct for width, 1mk
- For getting the scale correct for tread, 1mk
- For correctly representing quarter turn staircase, 3 mks
- For direction arrow, 1/2 mk
- For neatness and presentation, 2 mks

- (b) Sketch how to represent the following materials on a building floor plan or section

- i) glass ii) concrete iii) wood iv) earth v) hardcore (15 marks)

3 mks for each correct representation

2. Using scale 1:50 you are required to draw the floor plan in Figure 1 showing all the full dimensions. All the walls are 230mm thick. (30 marks)

- For correctly representing the materials/ components-5mks
- For using the appropriate scale& dimensions for all components-5mks
- For correct line type assignment-5mks
- For correct Dimension line 1- 3mks
- For correct Dimension line 2- 3mks
- For correct Dimension line 3- 3mks
- For correct internal dimensioning-2 mks
- For good/guided Lettering-3mks
- For general neatness-1mk

SECTION II

3. (a) You are required to sketch neatly and label the numbered parts of the building section Y- Y shown in Figure 2. (10 marks)

- For correctly mentioning each one of these, 1mk
 - 1-Ridge cap
 - 2-Purlin
 - 3-Rafter
 - 4-Tie-Beam
 - 5-Wall Plate
 - 6-Lintel
 - 7-Ceiling
 - 8-Windowhood
 - 9-Floor slab
 - 10-Foundation Footing

(b) Using neat and well labelled sketches show the plan, 1 section and 2 elevations each of any two roof types known to you. (10 marks)

- For showing the correct plan, 2 mks
- For showing the correct view for others, 1 mk each

4. Use Figure 3 to answer the following questions

- 1mk each for each item

(a) Supply dimensions a to j.

- a= 1940 mm
- b=750mm
- c=2390mm
- d=1730mm
- e=2030mm

- f= 1500mm
- g=3060mm
- h=2550mm
- i= 2200mm
- j=1500mm

- (b) What scale was used for the drawing? **1:100**
- (c) Identify the building element labelled A. **Double door**
- (d) The lines B represents **a step/change of level** while C represents **an arch/overhead beam**
- (e) Component D is a **column**, while E is a **wall**
- (f) The space labelled F is a **bathroom** and G is a **wardrobe**
- (g) The line Q_Q is a **section line**
- (viii) The elements H and I are **a shower tray, a WC/water closet**

5. Draw the block shown in figure 4 in isometric projection using a scale of 1:2. The given dimensions are in millimetres.

(20 marks)

- For getting the correct view/orientation/ isometric angles, 2 mks
- For using the correct scale, 4 mks
- For getting the exact figure with all lines, 6 mks, deduct ½ for every missing line
- For good dimensioning as shown, 5mks
- For good lettering and neatness, 3 mks

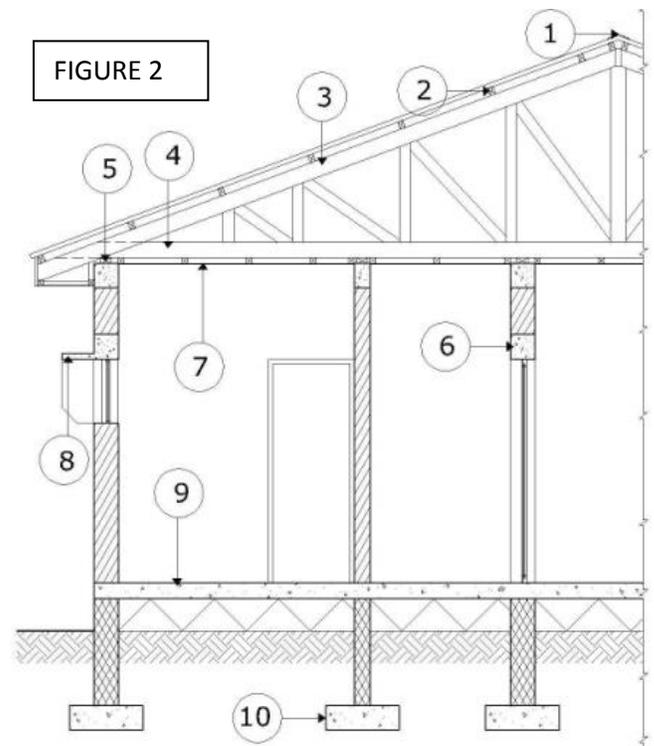
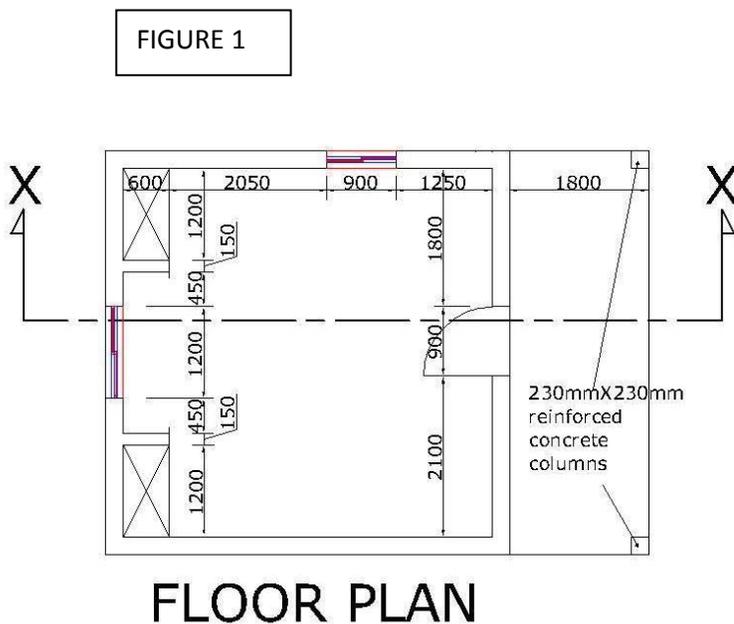


FIGURE 3
(See PDF file titled figure3)

