A DESIGN PROPOSAL FOR LAGOS RESORT CENTER, ALPHA BEACH, LEKKI, LAGOS STATE NIGERIA. WITH EMPHASIS ON STRUCTURAL STABILITY IN BUILDINGS

BY

OPANUGA OLUMIDE O.

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DECLARATION

I, Opanuga Olumide, declare that this thesis titled Lagos Resort Centre, Alpha beach, Lekki, Lagos State, Nigeria with Emphasis on structural stability is an original product of my own research work under the supervision of **Arc. Paul Haruna.**

Opanuga Olumide
M/tech/set/911/2001/2002

20/04/2004
Date

CERTIFICATION

This is to certify that this thesis titled Lagos Resort Centre, Alpha Beach, Lekki, Lagos State, Nigeria, is an original work undertaken by Opanuga Olumide of the Department of Architecture, School of Post Graduate Studies, Federal University of Technology, Minna in partial fulfillment of the requirements for the award of M.tech Degree in Architecture and is approved for its contribution knowledge and literary presentation.

Opanuga Olumide
Student

20/04/2004
Date

Arc. Paul Haruna
Supervisor

21/04/'04
Date

Dr. (Mrs.) Zubairu
Head of Department

22/4/04
Date

Dean School of Env. Tech
Prof. J. Solanke

Date

Prof. Abalaka J.A
Dean of postgraduate school.

Date

DEDICATION

I would like to dedicate this work to my parents

Thanks for being there always.

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I acknowledge my supervisor Arc Paul Haruna for guiding me through this project, Shaina A. for her tremendous assistance, my father and mother for aiding me financially, and most of all my friends.

ABSTRACT

In Nigeria, in spite of moving the capital city to Abuja, Lagos still remains and would still be the nerve centre of business and commercial activities attracting large surge of "Population" Immigrants. New roads were made, new buildings particularly Industrial and commercial blocks, and more recently roads, bridges and fly-over, reclamation and many more high-rise building have grown up to cope with the ever-increasing diplomatic, industrial, commercial activities in Lagos.

In essence, the city has become gam-packed and overcrowded. The traffic congestion, unbearable that some form of relaxation and leisure is required mostly at weekend or holidays for the inhabitants and tourist alike in a severe atmosphere outside the city.

Lagos Resort centre is a tourist centre proposed for leisure and mainly tourism purposes. This centre will serve as a hideout from long hours and week of strenuous wok.

The resort centre is located in Lagos State. The centre is aimed at boosting the tourism industry and utilization of the tourism facilities in Lagos State.

Similarly resorts and hotels were visited, of which their demerits were noted corrections in demerit are to be effected in the design and improvement on the merits.

TABLE OF CONTENTS

CHAPTER ONE

1.0 INTRODUCTION

Nigeria has plenty of tourist attractions. The tropical locations ensure warmth and reliable sunshine. Most of the beaches in coastal areas of Nigeria are under utilized.

Nigeria can offer the resource trio of sun, sand and sea, which is vital for the tourist now forming 95% of all leisure tourist.

Resort centers are built close to the sea to exploit these resources.

More and more of these pleasure complexes are appearing in Nigeria. Where the lifestyle of the tourist contrasts sharply with that of the majority of the population.

The only "Intrusion" of local society is the folk and cultural events laid on to entertain the hotel guests. These help create a slightly exotic atmosphere without disturbing the basic familiarity of the environment.

Hotels as elements of modern tourist attractions have long been identified with industrial societies where the pressures of modern livings have made their existence necessary. The introduction of paid holiday as a social measure paved the way for tourism on the scale we know it today, amounting to over ten million domestic and international visits a year consequently. The

whole working population in the country now has at their disposal both purchasing powers, time and the freedom to travel for holiday or recreational purpose.

This project will serve as a basis for learning more about the culture, arts and people of Lekki in relation to their architecture.

1.1 HOTEL DEFINITION

A hotel is essentially a place developed for the sojourn of tourists providing multiple facilities for their accommodations, leisure and other needs through the concentration of facilities. The hotel acquires an identity and character, it becomes a specific place to visit and relax in addition to serving as a gateway to other resources.

1.1.2 MOTIVATION

Recreation is basically renewal, recreation or revitalizing people so that they may efficiently return to activities, which are economically gainful. Based on this we can then believe that everybody needs to be revitalized in order to be effective at work.

Tourism is a part in a whole that cannot be totally divorced from recreation.

Individuals and group of individuals have engaged in or undertaken tourism on domestic level in small scale without realizing such is tourism.

The chief idea of this project is to annex and tap the advantage of tourism, which other developed countries have been enjoying in Lekki town in Lagos.

1.2 AIMS OF STUDY

The aims for this project include;

(i) To help in promoting and developing our arts and culture

(ii) To promote tourism in the country

(iii) To provide a place where an individual can experience freedom, diverse forms of self-expression, challenges relaxation.

The objectives for this project include;

1. Design emphasis on the relationship between public recreation opportunities and other type of spaces, land use, designs as well as accessibility.
2. The planning will reflect a balance orientation between needs and resource constraints.
3. The broad objective of this project is that of maximizing human welfare by creating a better, healthier, and more attractive hotel in life funds for the, state government and the nation as a whole.

1.3 SCOPE OF DESIGN

Among other recreational facilities the resort center will provide

(i) Accommodation

(ii) Maid service

(iii) Radio and television

(iv) Parking spaces for automobile

(v) Food and beverage service

(vi) Retail shops.

(vii) Recreational and athletic activities

(viii) Hotel services.

The hotel will also contain holiday business facilities, which will serve as an important source of income for the hotel i.e. meeting rooms, which will be used for conferences and lectures.

1.4 LIMITATION OF STUDY

Due to the lack of resort centers in Nigeria, my study has been a bit hindered, by the unavailability of proper case studies.

The few existing ones were not willing to give out very vital information.

1.5 IMPORTANCE OF STUDY

Hotel is a building that provides fun seekers and travelers accommodation, meals, conventional arenas and multiple recreational activities.

This resort hotel is expected to boost the tourism trades in Lekki, Lagos State, which will generate funds for the State and provide jobs for people residing in Lekki. The resort is also needed to pioneer the physical, economic and social development of highly ranked commercial services.

In order to provide these standard services, effective circulation and landscaping is necessary, taking into consideration the scenery of the beach surrounding on site. This will be adequately taken care of in the course of this project, laying more emphasis on structural stability of the hotel building and its facilities.

1.6 RESEARCH METHODOLOGY

The data are obtained by:-

(A) Literature survey method:

(i) Research into documented facts in relevant literature both local and international

(ii) Professional and academic material

(iii) The states town planning unit as well as the tourism board

(iv) Scientific data collection including data on climatologic, geomorphologic, dendrology consideration and energy resources.

(B) Interview Method.

(i) Oral interview

This involves the use of personal contact with others and asking question on the subject of the project. The accuracy of this type of data collection is based on the oral information, given by the person interviewed, which is subject to individual perception.

(C) Case Study Method:

Case studies are carried out by means of oral interview on existing project to avoid repetition of errors. This permits one to have a thorough observation and study of similar project.

1.7 DEFINITION OF TERMS

Inn: These are small Hotels usually used by travelers

Reception: This is an area in a hotel where the guests make their reservation, appointments and enquiry's.

Motel: These are Hotels along high ways, which provide space for car park. They are also called Motor Hotels.

Ballroom: This is a very large room that is used mainly for dancing or for formal gathering.

Conference Rooms: These are large rooms that usually accommodate large meetings or conferences

Bar: This is a place where guests may buy drinks, snacks or any other type of refreshment.

Banquet Hall: This is a large hall for grand formal dinners, or receptions.

House keeping: This is the department that manages the suites, and guestrooms. They take care of laundry maintenance, record keeping, security and general cleaning of rooms.

Gallery: These are shops where art works are displayed and sold.

CHAPTER TWO

2.0 HISTORICAL BACKGROUND

Up to the end of the 8th century, recreational facilities were mostly confined to the taverns along the high way and in the main destination e.g. pilgrim, marketing and ports. There were major developments in the following categories.

(1) Spa resorts for health and entertainment

(2) Climatic resorts for treatment of tuberculosis.

(3) Alpine resort for mountaineering, skiing

(4) Seaside resorts for cures and leisure.

Traditional resorts developed from existing villages and towns thereby changing the town itself or encouraging its growth in its immediate vicinity. The location was largely determined by access and allocations of travel facilities in often-large seaside or lakeside town resorts.

The Chinese flower gardens and the Japanese open vistas date back to the first century BC. These may not have been in the strict seers of recreation as they where mostly used as medication arenas and thus a classification under shrines. The advent of industrialization and its consequent adjunct-urbanization; could be said to be responsible for this recreational centers popularity.

The futures of many traditional resorts are uncertain as a result of changes in fashion and styles of living. Changes have been predominantly brought about by the developments in transportation thus people can go to where they so desire once they can afford it, and return in due time to continue their vocations. On the whole many recreational facilities centers encompass a wide variety of both active and passive leisure pursuits in addition to catering to other needs.

Thus, it could be said that the concerns for recreational vis-à-vis, it's accessibility and affordability have come a long way in determining it's effectiveness on the cultural back ground it serves.

It is however possible to introduce new vitality and income by carefully planned rehabilitation and orientation towards new market opportunities (weekend recreation) self-catering holidays, sophisticated recreation and entertainment etc.

In many situations the resort itself may be adapted by constructing new focal points and activity. New Jersey is an example where the existing resort may serve as an infrastructure base for extension to new areas. Redevelopment projects, perhaps even more than new developed areas, require survey and appraisals of the resources to identify those, which can and should be retained and others that are best removed or modified. Many of

the principles that apply to new developments are equally applicable to existing resorts.

Furthermore, much of the rapid and often large scale, urbanization projects associated with the post world–war developments presented an identifiable pattern in the form of: -

- Utilization's buildings occupying the maximum of the site and allowing little or no community benefit.
- Large dominated structures out of scale and characters with their traditional setting.
- Vast resorts such as on the Italian Adriatic and in Spain, development with out effective planning restraint often sprawling out along the coast to take material advantage of less expensive building land (Not withstanding its value as a natural setting and recreational resource).
- Ribbon development, along coast lines and scenic roads of poor quality and often short – hired prefabricated motels, holiday homes and chalets, left unoccupied and neglected for most of the year.
- Development of caravan and camping sites with minimum facilities
- Concentrated resort developments in the vicinity of international air ports.
- Overloading or inadequacy of infrastructure with resulting failure in supply, hazards and pollution.

By the early 1930's long before the post war tourism boom, the first planned resorts were beginning to make an appearance. "Law son and Bavo-Bovy (1977) described this as the new integrated resort since they were constructed on new sites free from the restarts of previous development. They were comprehensively planned and programmed to ensure at all times the correct scale and charter. The objectives were to achieve in few years what a century of costly trial and error had achieved in the best traditional resorts.

The state or local authorities have developed some of the planned integrated resorts. Those resorts developed by private promoters have tended to be mainly speculative but there is an increasing awareness of the operational attractions and long term financial benefits to be gained by comprehensive planning.

Developments have been co-ordinated through the following agencies over the years.

- Tour Operators running facilities. Example is the "CLUB MEDITERRANEAN, they are not interested in the acquisition of land and buildings but in renting and operating facilities or other promoters.
- Property developers in real estate with the services.

(a) Purchasing (b) Improving (c) Sales

This is an objective of private ownership of properties including condominiums rather than provision of hotel beds.

- Joint participation private and public

These include: -

(a) Local authorities with much finance from the state and recoupment from changes levied on the developer.

(b) State sponsored company or trusteeship established to provide technical and financial assistance to local authorities concerned.

(c) Private developers

To this day resort facilities with expensive recreational implications are not just buffers provided in medieval towns, but good business.

2.1 TOURISM IN NIGERIA

The development of the Nigerian economy during the colonial period was based on agricultural exports derived largely from the output of small holding peasant farmers. While exports yielded revenue for limited quantity of colonial investments in Nigeria's infrastructure, they were mainly intended to supply low cost raw materials to the Metropolitan countries. After Independence, a deliberate strategy of imports substituting and industrialization was pursued vigorously. During the decade between 1960 – 1970, light industries such as textiles, food

processing, metal and tourism proliferated and still continue to form the backbone of the few industrialized urban centers and a few rural areas in the country.

International tourism has become one of Nigeria's and even the world's largest and most rapidly expanding economic activities. Tourism has now become an important and dynamic sector of the economy in many countries. For many people today, the urge to travel can readily be satisfied because of higher income, leisure and cheaper transport. Also there has been the development of the "package" holding, which has made it easy to travel to almost any part of the world.

A look at the history of exploration and travel clearly illustrates people's desire to visit strange places and seek new experiences. The pressures of living in urbanized industrial countries may well have strengthened this impulse. The rest, relaxation and change of scenery which foreign travel offers are considered by many to be almost a basic need.

2.2 INVESTMENTS IN TOURISM

Over the years the federal and various state governments in one way or the other have contributed financially and morally

towards the tourism sector. Individuals have also contributed in no small measure towards enhancing tourism.

The Ikogosi warm spring, the Oguta Lake in Imo State, the mambilla plallene reserve in Bauchi State to mention a few, are some major tourist attractions which various tiers of government have been investing in. A close study of most state budgets reveals substantial sums of money directed towards the tourism area.

From time to time, some individuals too have helped in boosting tourism in Nigeria. They have either set up art galleries and have also set up amusement parks, museums, craft centers and resorts.

2.3 LIMITATIONS TO TOURIST DEVELOPMENT

Over the years steps have been taken by government to improve the tourism sector but such efforts have certain barriers or constraint militating against them. As they exist, certain experts have itemized some major constraints as areas that constitute set back.

- First and foremost, most of the experts believe that lack of awareness on the part of individuals and government is a major factor. Such experts argue that government especially and thus individuals seem to be oblivious to the major contributions towards

tourism and activities that could bring benefit to the Nigerian society. It could come in the form of money or aesthetics. They also state that most wealthy Nigerians have failed to realize gains associated with tourist attractions and so have also failed to invest in the area.

Nigeria being a vast expanse of vegetation, sea, lakes, plateaus, if well taken care of could serve as a great tourist attraction for all. Because of this lack of awareness on the governments' part, these natural reserves have remained underdeveloped, hence the country has lacked foreign visitors from far and near.

Inadequate financing has been cited as constraints to the "Lagging" tourism industry in Nigeria. Government has over the years been criticized for dragging its feet when it comes to financing the sector. Most tourism industrialist believes that a lot could be achieved in terms of tourism if sufficient funds are made available. They argue that most rare-breed of animal species in some game reserves in the country for instance have become extinct due to inadequate care arising from lack of sufficient funds.

The third factor has been lack of infrastructure. Nigeria being a developing country is faced with certain problems, which have continued to constitute a setback to tourism. Some major problems

like poor and in accessible roads, incessant power outage by the National Electrical Power Authority (NEPA) constitute just a few problems that have remained unsolved and have been confirmed to discourage intending visitors to these tourist attractions.

Lastly most people from outside Nigeria have always had the impression that Nigeria is an insecure place to visit and in fact they fear that the entire place is a beehive of hoodlums. They fear that security is not guaranteed in Nigeria and so only foreigners who must come and who are aware of the true position have continued to pay visits to the country.

Some publicity has to be done at home and abroad to enlighten people what Nigeria is capable of offering. Due to this lack of information intending visitors have continued to stay away from Nigeria.

2.4 TYPE OF TOURIST/RECREATIONAL ACTIVITIES.

In Nigeria, several tourist activities take place within the year. The Nigeria tourist Development Corporation, being the regulating body handling tourism affairs from time to time organizes seminars, conferences, symposium and workshop geared toward enhancing tourism in Nigeria.

For instance, Nigeria joins the rest of the world in celebrating the annual world tourist day, which is usually celebrated on the 27th

of September. There is also the international tourist Expo that is also an annual event. Nigeria participates in this event and the training course on tourist guide is among various tourist activities beamed towards enhancement of tourism in the country.

In November 1987 an international tourist Expo which was the first of its kind in Nigeria was organized in Lagos. During the tourism Expo all states in Nigeria participated, other participants were the republics of Benin, Togo and Senegal including some companies and organizations.

The identification of recreational activities is in many respects, subjective but they can be grouped into five broad categories.

- Those taking place in and around the house for example watching television, listening to radio, reading books, gardening
- Activities with high social content. Example (entertainment, eating out, visiting inns e.t.c.)
- Cultural and artistic pursuits. Example (visiting theatres, concerts, art exhibitions)
- Active pursuits of sports. Example (swimming, squash, golf, tennis)
- Informal outdoor activities. Example (picnicking, driving for pleasure and sight seeing. The first of these group, although a major constituent of leisure time is outside the scope of this thesis.

2.5 RECREATION AND TOURISM IN DEVELOPMENT

Boundaries between urban and rural recreation and between recreation and tourism are indistinct after sharing the same facilities and competing for space and finance. For example exotic leisure facilities such as suburban parks may be deliberately provided to attract tourists, although exposed to the competition of alternative profit motivated activities.

Further more, many facilities related to tourism and recreation are common or interchangeable. But compared with tourism, the over all occupancy levels of recreational facilities are often much lower, especially if the recreational use is limited to weekends and / or to particular seasons of the year e.g. camping. Resources, whether man made or natural attractions are a determining factor in tourism, since the tourist generally has a wide choice between alternative destinations. The situation is quite different in recreation where the problem is to satisfy local demand even where the natural resource of the area is poor or inadequate. This may involve the construction of artificial lakes, canals,sports ground or enclosed sports centers. Traditional and existing natural resources will however play a major role. The presence of a large

Page 8 — 19

(12 pages)

lake, will for instance allow large scale development of boating, sailing and other similar facilities while other locations may encourage mountaineering or horse riding. It is for this reason that patterns of demand for recreation are widely variable, depending on the degree of resources available in that locality. Allowing for these differences the same methodology and techniques used planning tourism can generally be applied to recreational planning.

For planning purposes therefore it would be valuable to know which categories of recreation will be more beneficial despite the difficulties in measuring and forecasting leisure time and even its apportionment between indoor and out door use of leisure.

As a broad classification, out door use of leisure may be considered as (source Lawsons and Bany-Bory (1997))

- Daily Recreation: Essentially using urban facilities for short periods during the day. One day recreation includes; excursions to the fringes of urban areas or further into the country within easy reach (distance varying with size of town and road networks)
- Weekends and short holidays: Secondary homes, weekend accommodation; patronized by foreign and domestic tourists.
- Long holidays - Usually spent in the totality away from vicinity of home of abode: aims towards sight seeing and sojourn.

2.6 TOURISM IN LAGOS STATE

Lagos lies to the southwestern part of the country (Nigeria), sharing boundaries with Ogun State on the north, in the west by republic of Benin and the south by the Atlantic Ocean. The state is the former seat of the federal government. This has led to a steady growth of development and also an influx of people from the hinterland. The development of the city has spread outward, so much that the boundary of Lagos Metropolis has to be adjusted regularly.

Lagos State, because of the position held, has remained a socio-cultural meeting point of nations. This is due to the economic and socio-political importance not only in Nigeria but also in Africa.

Tourists coming into Lagos have a choice of places to visit, this is because the attraction open to them are numerous.

The architecture of structures both old and new is only a part of this collection. The old, which was influence by Missionaries and African immigrants from Brazil and Sierra-Leone, can still be seen in some parts of Lagos Island. The modern architectural structures include the many skyscrapers sported in the city.

The places of interest include Tafawa Balewa square, Nigeria museum cenotaph etc. There are other activities to watch

for instance the popular Lagos masquerade festival, which showcases the rich aspect of the culture of the people.

2.7 THE NEED FOR TOURIST CENTRES IN FORM OF BEACH RESORTS

Tourism is a vast economic and social phenomenon associated with travel. Tourism means any purposeful travel made by man for any reason for instance holiday, business, health or education that takes him away from his place of abode. One of the aspects of tourism this project is concerned with is recreation that comes in different forms.

Recently, in Lagos the Tourism Board was set up with much emphasis was on development of the beaches, (Bar beach, Kuramo beach, Maiyegun beach (Lekki) beach, Eleko beach, Epe waters, Marina waters, Badagary beach, and Badagary marina). Also, infrastructural developments in those places were studied and found viable as a first phase for nursing tourism in Lagos state in conjunction with this, the state commissioner for works and transport has plans to beautify Lagos which would include the development of Lagos state beaches. (Daily times Monday, February 16th 1987).

Today such routine visitations by incumbent governments have not failed to share interest in the necessity for government

intervention, especially on the provision of recreational facilities with emphasis on beach resorts. Yet, nothing has been done to cater for this need.

Some of the social pressures associated with the city life are seen to increase due to this lack. Under the infrastructural policy, resorts of two types are recommended, they are

- Popular resorts
- Minor resorts

(Tourism Board in National gazette)

Moreover, a brief survey of the beach will quickly confirm that variety of people visit and enjoy the beach. The present (1995) over encroaching of the ocean in the Bar Beach is quickly paving way for a newer, better and more satisfying resort.

Further more, the rising demand for recreation in Lagos is mainly due to its rapid population growth. Only 13.9 percent of the population are children under four years, 39.4 percent are teenagers, 48.1 percent are absorbed into the labour force and 8.6 percent are aged. These distribution shows that the largest percentage consists people who really need the interchange of work and play and those who equally can afford it. An analysis of age set distribution and the demand for recreation show the following (Koshoedo 1987).

AGE: Children in this age group (1 – 4) normally recreate close to their homes except on family excursions.

Adolescents and young unmarried adults are the main participants in Tourism and recreation. They are interested in physical recreation including organized games and club activities. They spend more time away from home. Majorities of all students are within this category.

Married young adults partake in passive recreation like sight seeing and picnicking. Old age group is not active at all, They stay indoors for recreation.

SEX

Men are much more involved in active sports, while women often inter weave their leisure activities with household duties especially the married ones. Women are involved in passive recreation, mainly watching active sports and picnicking.

Other demand factors include mobility, population which make recreation more accessible and government policy which make leisure time more available. The standard of living and education which increases recreational pursuits studies show that the middle income group and foreigners account for the highest participants in recreation in Ibeju – Lekki area.

Similarly majority of tourist come from the Lagos area, less than 10% from the neighboring state and neighboring countries and less than 5% of those coming to Eleko Beach are willing to spend the weekend even with the presently improvised shelter.

About 90% intend to swim when they go to the beach but the salty water and lack of other recreational facilities only encourage their own intended personal involvement and eating. (Koshoedo G.S 1987)

Thus it is evident that, the beach has a rising demand for recreation, particularly for short time recreation.

Certain observation (made by Koshoedo 1987) responsible for the short time recreation include:-

- length of journey to the site
- the underdeveloped nature
- The affordability of transportation and period stay.

Obviously, to every resort which encourages recreation there is always a catchment of users; an identity has been made of three categories from reports already cited.

- Medium income earners and foreigners
- Working class adults and adolescence (married/unmarried)
- Children

This catchment forms a pool strong enough to instill continuity in the system of recreation once started.

CHAPTER THREE

3.0 RESEARCH AREA:

ENSURING STRUCTURAL STABILITY IN BUILDING

This chapter is aimed at analyzing the capacity of the compression members or elements to remain in position and support load, this must be achieved so that even if the members are forced out of line or position by an added lateral force they will not buckle. In doing this, the researcher has comprehensively discussed the usefulness of columns in structures to ensure stability.

3.1 THE METAL COLUMN; PAST AND PRESENT

Whether the structure is man-made or created by nature, the column is the key element in resisting collapse under gravity load, in buildings and bridges, in trees and plants.

The development of the metal structural column has involved the interrelated development of theory, materials, testing machines. Test instruments, design procedures, and design standardization, modern column theory had its start with Euler in 1774. At that time structural metals were not in engineering use, and there was little need to apply column theory in design, which was still largely an art. However in 1783, the production of wrought iron rolled shapes was initiated and followed by the advent of structural steel made commercially available by the Bessemer furnace in 1856. Wrought iron and steel made possible the development of the railroads, starting in the 1820's, and railways in turn created the need for the

Railway Bridge. Thus came about the first real invention for application of column theory in the design of metal structures.

In 1807,Thomas Yound had determined the theoretical deflection curve of the eccentrically loaded and initially crooked column, but it was not until 1858's that strain-measuring instruments became available. And quantitative experimental research became possible. During the same period modifications were made in the Euler formula to adapt it to the prediction of the buckling load in the inelastic range of behavior.

Modern specifications for bridge and building design are a development of the past 80 years, improving during this time with the continued refinement, growth, and diversification of theory, experimental techniques, and results of structural research. Highlights of the last 30 years have included recognition of the role of residual stress in the inelastic behavior of steel columns. The development of plastic design, experimentation on large-scale structural assemblages, and the greatly increased capacity to make complex analyses relating to structural design is made possible through electronic computation. Column Research Council aims to present in this research a basis for the further development of improved design criteria for metal compression members and structures.

3.2 SCOPE AND SUMMARY OF THE RESEARCH

The research covers the evaluation of critical (buckling) loads in ideally perfect members and structures. Alternatively, it also deals with the more realistic problems related to the behavior of members with initial imperfections. The study of critical load theory improves ones understanding of buckling

behavior, provides a limit representative of behavior when imperfections reduce to zero, and in some cases provides useful design criteria. If the post-buckling strength is either greater or less than the critical load, by an appreciable amount it will of course, have important bearings on the determination of a safe design load. It is the intent of the Guide to leave to the specification writer or engineer the determination of the design load consistent with the degree of risk that he considers appropriate.

A periodic re-examination of relationship between compression member theory and design is made necessary by new research findings, changes in available materials, methods of fabrication, design procedures, and the commercial introduction of new shapes and types of members.

This thesis reflects recent research results that include the following:

1. Studies of residual stress in steel members, with emphasis on heavy hot-rolled beam and column shape sand heavy H and box sections built-up welding plates.
2. Developments relating the strain-hardening modulus to inelastic buckling and plastic design.
3. Studies of the change in properties as a result of cold-forming processes in the manufacture of cold-formed thin walled shapes.
4. Hybrid steel construction.
5. Studies on the combined effects of (a) initial residual stresses and (b) geometric shape imperfections and / or uncertainties as to load location.

Materials covered include structural steels, hot-and cold-rolled sheet and strip steels, stainless steels, and structural aluminum alloys. The criteria for compression- member design will vary because of the different characteristics of the stress-stain relationship for these materials, differences in the patterns of initial residual induced by manufacturing and fabrication processes, and above all, the different types of structures in which these materials are used.

Currently there are about 200 ASTM-type and prcprietary steels being marketed with yield points or yield strengths in the range from 36 to over 100 ksi. Only a general classification of these is included herein. Compression-member behavior is treated on the basis of general group characteristics, and in terms of representative yield-point levels in conjunction with effects of shape, residual stress, response to strain hardening, and initial imperfections.

3.3 MECHANICAL PROPERTIES OF STUCTURAL METALS

Knowledge of the stress-strain relationship during the elastic and initial inelastic ranges of behavior is an essential requisite to compression member analysis. In the elastic range there are accepted average values of the modulus of elasticity, and test values vary within reasonably small limits. Minimum specified values of the yield point or yield strength (depending on whether the initiation of yielding is a sudden or gradual process) is provided by the various specifications of the American Society from the manufactures. In this thesis the term

"yield stress" generally is used to denote either the yield point or yield strength, whichever is applicable.

(1) **Stress-strain Relationships:** The structurally significant aspects of a stress-stain curve for carbon or high-strength low-alloy structural steels can be characterized by the following five properties.

= Modulus of elasticity = slope of stress-strain curve in the elastic range

= Upper yield point (maximum stress prior to yield stress level)

= Yield – stress level (stress at a constant strain rate in the flat portion of the = stress-strain hardening.

= (d0/de) = strain- hardening modulus (initial)

Their properties are generally sufficient for the calculation of the inelastic strength and plastic deformation of structural steel members. Structurally significant properties of the aluminum alloys, quenched and tempered steels, cold-worked steels, and stainless steels include the modulus of elasticity, E; the yield strength, preferably determined by the offset method (ASTM Designation A370); and the tangent modulus,

E_1= (do/de), which varies with stress for strains greater than the elastic limit. For all steels and aluminum alloys the maximum tensile (ultimate) strength, based on original area, is also a part of the mill test report, although of on direct relevance to compression-member behavior.

The yield stress of both steel and aluminum alloy varies with temperature rate of strain, and the surface characteristics

of the test specimen, as well as with the testing machine and test method. The yield stress is a function of the rate of strain, hence becoming lower as the testing speed is lowered. "Zero strain rate" defines a lower limit of the testing speed corresponding to the lowest value of yield-stress level for structural steels. ASTM specifications establish a maximum allowable strain rate. Test made according to these specifications may be suitable for quality control but indicate yield –stress values as much as 15% greater than those from tests at lower rates of strain. The influence of strain rate is less, percentage wise, for the higher strength steels.

For as – rolled structural steels the yield-stress level in a tension or compression test can be regarded as the level of stress, after initial yield, that is sufficient at a given temperature an rate-of-strain to develop successively new planes of slip in the portions of the test specimen that remain in the elastic state. After initial yielding has proceeded discontinuously from point to point throughout the specimen, a general strain hardening commences, and the stress rises with further increase in strain. The sharp yield point may disappear with cool work or heat treatment.

The yield-stress level is structurally more significant that the upper yield point and its existence for relatively large average strains with on appreciable change in stress is taken advantage of in plastic design and inelastic analyses by permitting the assumption that the stress is constant and equal to the yield stress across yielded portions of the cross section.

The plot of average stress versus strain as determined by a stub-column test is somewhat different from that resulting

from the test of a small specimen. Residual stresses are one cause of these differences other factors are the lack of uniformity of yield stress over the cross section and varying degrees of working during the rolling process. Likewise, strain hardening caused by the forming processes in cold-formed members may result in changes in yield stress which tend to shift the curve of average stress versus strain toward higher values of stress and a more gradual yield development. Cold-forming effects are particularly pronounced for the stainless steels.

(2) **Structural Steels.** During the past two decades, the steel industry has emphasized the development and application of higher strength steels for structures. As new alloys were developed, the CRC became concerned with the relationship between the mechanical properties of these alloys and the bucking of compression members. A task group was formed to suggest a classification of steel for structures that would identify major type and analyze trends of future development. The task group shared the feeling of a number of designers and structural research workers that the design problem would be simplified if the yield stress of the steels followed a systematic progression of stress levels-however, such a classification is not currently practicable.

Steels now available as plates, bars, and structural shape for use in structures can be grouped in the following four categorizes:

1. Structural carbon steels.
2. High-strength and low-alloy steels.
3. Heat-treated carbon steels.
4. Heat-treated alloy steels.

These general types are arranged approximately in order of increasing yield-stress level, although there is a degree of overlap in the yield-stress values. These steels are produced to their specified properties at the mill and, in general, no further heat treatment to alter the properties is performed.

In addition, steel sheet and strip of structural quality are finding increasing use in structures. Carbon and high-strength low-alloy

Steels are available in this product area. Sheet and strip are cold formed to sharp for load-carrying purposes in structures.

Structural carbon Steels (Type 1). For many years ASTM" steel was the basic structure carbon steel and was produced to a minimum yield point of 33 Ksi. For welded structures, ASTM A373 steel with a minimum yield point of 32ksi was frequently specified. In 1960, ASTM A36 steel was introduced with a yield point of 36Ksi, providing engineers with structural carbon steel of reliable welding characteristics and a slightly higher yield point at a relatively low cost. Both of the earlier specifications (A373 and A7) have now been discontinued as ASTM standards. In Canada, improved structural carbon steels are covered specification G. 40. 21 of the Canadian Standards association (CSA).

High-Strength low-Alloy Steels (Type 2). The high-strength low-alloy steels are predominant in this category. They

include a rather wide variety of steels with yield points ranging from 42 to 70 Ksi. Some of these steels have been available for over 30 years, but new grades or variations of existing grades are still being introduced. These steels are generally furnished in the as-rolled condition, exhibit ferrite-Pearle microstructures, and derive their strength from moderate alloy additions. The elements generally added are chromium, nickel, molybdenum, and zirconium vanadium in a wide variety of combinations. Under this type and following four groups are encountered.

Manganese-copper group. The high-strength steels in this group are generally covered by ASTM A440 and are intended for riveted and bolted structures. They yield point of A440 is 50 Ksi in thickness not exceeding ¾ in. and is reduced for thicker sections.

Managnese-copper-vanadium group. The high-strength low-alloy steels in this group are generally covered by ASTM A441 and are intended for welded structures. The yield point of A441 steels is 50Ksi in thickness not exceeding ¾ in. and reduced for thicker sections.

Multiple alloy group. Feature of the high- strength lo-alloy steels in this strength range is their good resistance to atmospheric corrosion, which frequently permits use in the unpainted condition. ASTM Specification A242 has limited application in this group, although much steel exceeds the requirements of this specification. Steel producers have made progress in developing steels that maintain a 50-Ksi-yield point in thick sections, even up to 4 in, and these are now covered by ASTM A588 and SCA G40. 21.

Columbium or vanadium group. Initially, steels in this group were offered with yield points ranging from 45 to 70 Ksi, with increments of 5 Ksi. However, the recent trend is to increase the increments and hence decrease the number of classes. Some steel companies now emphasize the availability of steels with yield point of 42, 50, 60, and 70 ksi. Steels in this group with yield points up to 65ksi, inclusive, are covered by ASTM Specification A572. A new trend gaining some strength in the industry, and one which designer swill heartily endorse, is to tailor the composition according to section thickness, so that specified yield point can be maintained over a wide range of different thickness. For example, 42-ksi yield-point steels are with higher yield points are available only in lighter sections, for example, 11/2 in. and under for the 60-ksi steels. Availability of these steels with relation to thickness and yield points is constantly changing.

Heat-Treated (Quenched and Tempered) Carbon steels 9Type 3). The first steel of this type was introduced in 1964. It was developed to fill the need for a constructional steel intermediate between the 50-ksi-yield point of heave-section high-strength low-alloy steels and the 100-ksi-yield strength of heat-treated alloy steels. Heat-treated carbon steels are now available with yield strengths of 80, 90 and 100 ksi in thickness through 11/4 in., 1 in., and 1 in. respectively. The steels are available from the mill in the quenched and tempered condition and intended for welded structures.

High-Strength Heat- (Quenched and Tempered) Alloy steels (Type 4). The first steel of this type was introduced in 1953. The development marked a major advance, because the

new steel provided yield strength three times that of the previously available high-strength low-alloy steels, and yet exhibited good weldability and toughness. Since 1964, these steels have been covered by ASTM specifications. A514 provides for structural quality plates with 100-ksi yield strength to 21/2 in., inclusive, in thickness and 90-ksi yield strength over 21/2 in. to 4., inclusive, in thickness. The CSA Std. G. 4021 covers. Heat-treated low-allow steels with a 100-ksi-yield stress.

Sheet and Steels of Structural Quality. Hot-rolled carbon steel sheet and strip of structural quality are covered by ASTM specification A570. Hot-and cold-rolled high-strength low alloy steels in sheet and strip are covered by specification A607 (Columbium and/or Vanadium) and A606 (Improved corrosion resistance). Each of these specifications includes several steel grades (that is, different yield- point levels).

1. 2000 series. Main allying element copper. Heat-treatable. Usually protected by paint, anodizing, or cladding with a more corrosion resistant alloy. Some alloys are weldable (2219, 2021) and some are not (2024, 2014). Minimum yield strengths generally range from 30 to 65 ksi, depending on heat treatment.
2. 3000 series. Main alloying ingredient manganese. Non-heat-treatable. Usually unpainted except for decorative purpose. Weldable. Example: 3003, 3004. Minimum yields strengths generally 10 to 30 ksi.
3. 5000 series. Main alloying element magnesium. Non-heat-tratble. Usually unpainted. Weldable examples; 5052, 5083,

5086, 5454, 5456. Minimum yields strengths range from 15 to ksi, depending on the alloy.

4. 6000 series. Main alloying elements magnesium and silicon. Heat-treatable. Usually unpainted. Weldable Examples: 6005, 6063, and 6351. Minimum yield strength generally ranges from 15 to 35 ksi, depending on alloy and heat treatment.

5. 7000 series. Main alloying elements zinc and magnesium. Heat-treatable. Often protected by paint, anodizing, or cladding wit a more corrosion-resistant alloy. Some alloys Weldable (7005, 7039) and some not (7075, 7178). Minimum yield strength generally range from 45 to 80 ksi, depending on alloy an heat treatment.

Alloys of the 500 and 6000 series, such as 5456-H321 and 6061-T6, are usually employed for general structural purposes; alloys of the 200 and 7000 series are more often used in aerospace application shapes are fabricated by the extrusion process. They are usually made from heat-treatable alloys, such as 6061d-T6, because these alloys are easier to extrude than the 5000 series. The later alloys are used principally for sheet and plate. The various products made from the aluminum alloys are covered in ASTM Specifications B209, B2l0, B2l1, B22l, B234, B241, B247, B308 and B429.

(3) **Stainless Steel**. Until recently, applications of stainless steel in building construction have been limited to non-structural use. The American Iron and steel Institute (I.3) recently has provided improved procedures for the structural use of stainless steels. The mechanical properties of wrought stainless steels are markedly different from those of structural carbon and low-ally

steels. The effect of cold working in increasing yield and tensile strengths is relatively more marked than for other steels, as is the decrease in ductility. Anisotropy is also accentuated, and there is a marked increase in the difference between the stress-strain curves in tension and compression, particularly in the longitudinal direction.

3.4 STRUCTURAL SAFETY

Structural safety is a basic consideration in good engineering practice. In a proper design, safety, serviceability, and economy are in balance and should remain so throughout the intended life of the structure. A 'safe' structure serves usefully (i.e., with little or no damage} under the expected loads, in a manner acceptable to the user, and without injury or loss of life resulting from structural malfunction. In addition, the likelihood of collapse under unusual loads, such as earthquake or extreme winds, should be very small (2.1, A33). The foregoing considerations should lead to the optimum design.

3.5 CONCEPTS OF STRUCTURAL SAFETY.

The loads that a structure will experience in its lifetime, the desired length of life, the geometric configuration of the members, the properties of the materials, the theories used, the mathematical idealizations, the construction methods, and many other factors that enter into consideration during the design process all involve varying degrees of uncertainty and randomness. Because of these inherent uncertainties thee is always a chance, albeit small, that structural failure or malfunction may occur. The definition o the 'probability of

failure,' or its converse, the 'probability of survival' or 'reliability' can be explained in a rather simplified but useful way (2.l9) by assuming that the loads S and the resistance (or 'capacity') R are the significant variables that define safety. That is, if R>S, the structure is safe, and if R>S, it will fail. For the sake of simplicity it is assumed that R and S are independent, and assumption approximately correct in the usual cases of static or quasi-static loading.

Since the loading s and the resistance R are random variables they have some kind of a frequency distribution f(s) and g® as illustrated in Fig 3. The probability that R<S, that is, the probability of failure, is (A.33, 2.l9)

This can be explained with reference to Fig. 3. As follows: if the load has a value S, then the failure probability would have been p, =so g (R) dr; however, since the load is f(S) dS. Therefore, to account for all possible values of S, we add up all the products of P 1 f(S) dS.

If the frequency distribution f(S)and g® were known, the probabilities of failure an survival could be evaluated from Eqs. 2.1 and 2.2, and these could then be compared with acceptable probabilities as defined by economic and social considerations of the consequences of failure. This, of course, is easier said than done. Acceptable probabilities of failure are difficult to define, and generally agreed-upon procedures have yet to be found. Furthermore, the distribution f(s) and g(R) are incomplete. And added complication arises from the fact that construction errors, uncontrollable future changes in use, and translations of laboratory observations to field behavior are not amenable to statistical analysis (2.2).

Thus while the conceptual framework is simple, the execution is difficult if not impossible. Engineers have always been faced with this dilemma and traditionally they have by passed the problem by introducing a factor of safety, FS. That is low values of the resistance R and high values of the loading S (Fig 3.1) are chosen such that, in design,

$R_I > (FS)S_I$

Is always satisfied. The factor –of –safety thus accounts for the inherent uncertainties in a very simple manner, and most structural design specifications are based on this concept. Although factors of safety are chosen with great care, taking into consideration past successful and unsuccessful experience and using professional judgment, they do not reflect the true aspect of structural safety, namely the inherent degree of randomness of the parameters (2.3-2.5).

Realizing that the traditional approach of using factor-of-safety procedures is not entirely adequate, and that the completely approach is too idealistic and ultimately too complex (2.6 and 2.7), researchers have been turning their efforts to achieve a compromise solution by retaining their efforts to achieve a compromise solution by retaining some of the simplicity of the traditional approach while incorporation probabilistic concepts to a degree. The references at the end of this chapter describe some of these efforts 92.2, 2.8-2.20). Several possibilities have been proposed, and they are being considered at present by the Committee on Structural Safety and Reliability of the ASCE Structural Division. Since no single approach has as yet been full accepted, and since a discussion

of all of these methods would be too lengthy, the trader is advised to refer for details to the cited references.

3.7.0 LOAD AND RESISTANCE FACTOR DESIGN (LIMITED STATES DESIGN)

The use of load factors has been traditional in aircraft design and is basic to the application of plastic design of steel frames. In column design the allowable stress has been determined by dividing the buckling load by a load factor. Load and resistance factor design, also called limit states design, includes the use of load factors but involves the systematic consideration of any structural condition that may render the structure unit for its intended us (2.1). Limited states may refer either to collapse or to excessive elastic or inelastic deformation, or simply to a limit of serviceability, such as cracking or uncomfortable oscillations. The limit state approach not only involves the use of load-factors, but also introduces the use of material and dimension factors.

In many countries, including Czechoslovakia, Russia, Denmark, and Norway, structural specifications based on limit-states design are currently in use. In this country, except for the limited acceptance of the load-factor as an optional alternative in the design of steel frames and bridges, a broad involvement in the newer concepts is still slight, and the present situation can be described as a period of transition. On the conceptual level, it is accepted that the design parameters are random, an thus they should be treated on a probabilistic basis. The theoretical bases for this approach have been thoroughly formulated by Fredenthal 92.3, 2.5). Research is underway to

develop practical design procedures from these theoretical concepts. The goal is to accomplish the requisite collection, classification, and evaluation of data on loads, strengths, tolerances, and other relevant aspects of the problem, and then arrive at simplified, yet probabilistically sound design procedures.

The load factor design criteria usually take on the following form:

( ) R1> S1 (2.5)

and

R1> ( ) S1 (2.6)

In the first instance the traditional allowable stress design results that is:

R1>S1 (2.7)

And in the second instance the design method is the one long used in aircraft design and more recently in plastic design, that is,

R1>(LF)S1 (2.8)

Where LF is the load factor by which the working loads are multiplied. Thus the traditional ways of designing are subsets of the more general formulation given in Eq. 2.4.

The factor of safety in Eq. 2.7. Are given to the designer in structural specifications, and they have evolved from long experience with successful designs. Probability theory has not been sued directly, but many ears of success show that the resulting reliability is acceptable to the professor. However, the

more general formulation used in Eq. 2.4 permits the separation of the load effects and the resistances, and it allows consideration of the uncertainties inherent in each. The nominal resistance r, reflects the various "limit states" that need to be considered, for example, yielding, formation of a plastic hinge, maximum deflection, the onset of instability, or the endurance limit. The following chapters of thesis are useful in determining gone part of the problem: the limiting resistance of a structure or its components as by instability. Ideally the product Rn reflects a value of resistance, in the light of all relevant uncertainties, the product Yn is a load effect that has a small likelihood of being exceeded.

The questions as to what these likelihoods should be, that is, how O and y can be obtained by probabilistic reasoning, are the ones occupying much of the current research effort. Some of the proposed approaches (2.15,2.16) recommend the determination of the reliability by "calibrating" new codes to acceptable reliable present codes (2.17) an using only mean values and standard derivation to describe the statistical properties of the variables. Usually it is also recommended that the product Sn be partitioned into "multiple load factors," that is, With different factors y for various load effects, for example, for live load, dead load, and wind. The factors y1 y2, etc., may have different values dependent on the fact that the effects of the loads to which they are applied must be added to or subtracted from the total, and they are dependent on the number and types of loading that act concurrently.

In summary, then, it appears that in the future the designer will use an inequality type formula of the form as shown in Eq. 2.4 for the consideration of the various limit states in design, and he will not experience a great change from the traditional well-known procedure. The specification writers, on the other hand, will need to provide the factors o and y, and these will be based on a combination of probabilistic theory and engineering judgment. The explicit introduction of a "judgment" factor has been suggested (92.20) as a means of bridging the gap between the determination of theoretical risk and practical considerations not amenable to probability functions.

3.8.0 THE SAFETY OF COLUMNS

Member behavior in column tests can be closely predicted if the end conditions are accurately controlled, and if all the material and dimensional parameters are known. In order to achieve a satisfactory translation of information from laboratory columns in actual structures. It is necessary to evaluate the statistical properties (if not the complete distribution then at least the mean values and the standard deviations) of the material (yield strength, modulus of elasticity, residual stress, etc), the cross sectional properties, the initial imperfections, the

end conditions, and so no. Such work is in progress and some result pertinent to axially loaded columns is given. A design study is also relevant to application to design of steel buildings 92.21) a European project has been in progress since 1959 to develop statistically based column strength criteria for use in specifications. Thus the time is close at hand when probabilistic design procedures will make positive inroads on the factor-of-safety and load-factor procedures now in use.

3.9.0 SAFETY IN COLUMN-SUPPORT DETAILS

The application of more rational procedures of safety and risk analysis is meaningless if the design of the column support details is inadequate. Many aspects of good column design practice are too complicated to be covered herein. Important topics not covered include spacing of fasteners in built-up columns, design of column splices, a design of column anchorage's, United states specifications (A.11. A.13, A.16, A.17) give requirement for such column details.

CHAPTER FOUR

4.o CASE STUDIES RESORT FACILITY

A few existing hotels/resort centers are considered relevant to this thesis in other to examine inadequate and further highlight their success for present and future adoptions. The ranges of services notably common to majority of such concern include.

- Administrative
- Retail Shops
- Entertainment and sports
- Social and cultural activities
- Technical and other Ancillary services.

These facilities can be divided into two main categories.

- Those common to all type of resorts; where they may be located providing for general furnish needs such as accommodation fathering entertainment's leisure and relaxation and providing the basic technical infrastructure for resort operation.
- Those which are identified with particular localities, willing the resources of the site and surroundings for more specific pursuits in recreation which characterize the nature of the resort.

4.1 CASE STUDY ONE

LE MERIDIEN

EKO HOTEL

4.1.1 DESCRIPTION

Eko Hotel is situated beside the Historical Kuramo beach along Adetokunbo Ademola Street Victoria Island, Lagos State. It is a three minute drive away from the Atlantic Ocean, though about fifty – five kilometer from the international airport in Ikeja Lagos, there is a connecting route, which quickens movement of guest to and from the hotel.

4.1.2. FACILITIES

i) Administrative section
ii) Restaurant
iii) Swimming pool
iv) Multi – purpose hall
v) Executive Suite
vi) Double standard / Single standard rooms
vii) Mosque
viii) Generator House
ix) GYM
x) Retail shops for sales of craft
xi) Parking spaces
xii) Attractive landscape
xiii) Casino

4.3 MERITS

i) Good construction material and finished and well planned lobbies and corridors within the guest bedrooms

ii) The introduction of Attractive Landscape and provision of adequate drawing facilities helps solve the problems of water erosion from the sea.

iii) Market, shop restaurant and clubs are around the hotel so there are enough activities to keep guest relaxed and busy.

iv) It is located at a strategic location in the central business district and residential area that makes it easily accessible to visitors.

v) Located close to the beach, thus giving the guests a good view of the ocean.

4.1.4 DEMERITS

1. Location of the hotel makes the gate area rowdy.
2. Management of space. The hotel is choked up with facilities over a small space.
3. Insufficient lighting along corridors
4. Inadequate ventilation in the restaurant and some of the rooms.

ENTRANCE PORCH

AERIEL VIEW.

Swimming pool

CASINO

4.2. CASE STUDY TWO

IKEJA AIRPORT HOTEL.

4.2.1 DESCRIPTION

Ikeja Airport hotel is located along Obafemi Awolowo way Ikeja Lagos state the hotel is about 5 kilometers from the International Airport.

4.2.2. FACILITIES.

- Administrative block.
- Generator house
- Swimming pool.
- Gate house
- Chinese restaurant
- Refried parking space
- Landscape
- Retail Shops.
- Single Standard / Double standard Rooms.
- Executive suites.
- Banquet Hall.

4.2.2 MERITS

1) Centrally located within the city thereby easily accessible to its users.
2) The hotel is well landscaped.
3) Provision of parking spaces.
4) The seclusion of other facilities from the Accommodation Area.

5) Good accessibility and adequate facilities are provided for guest.

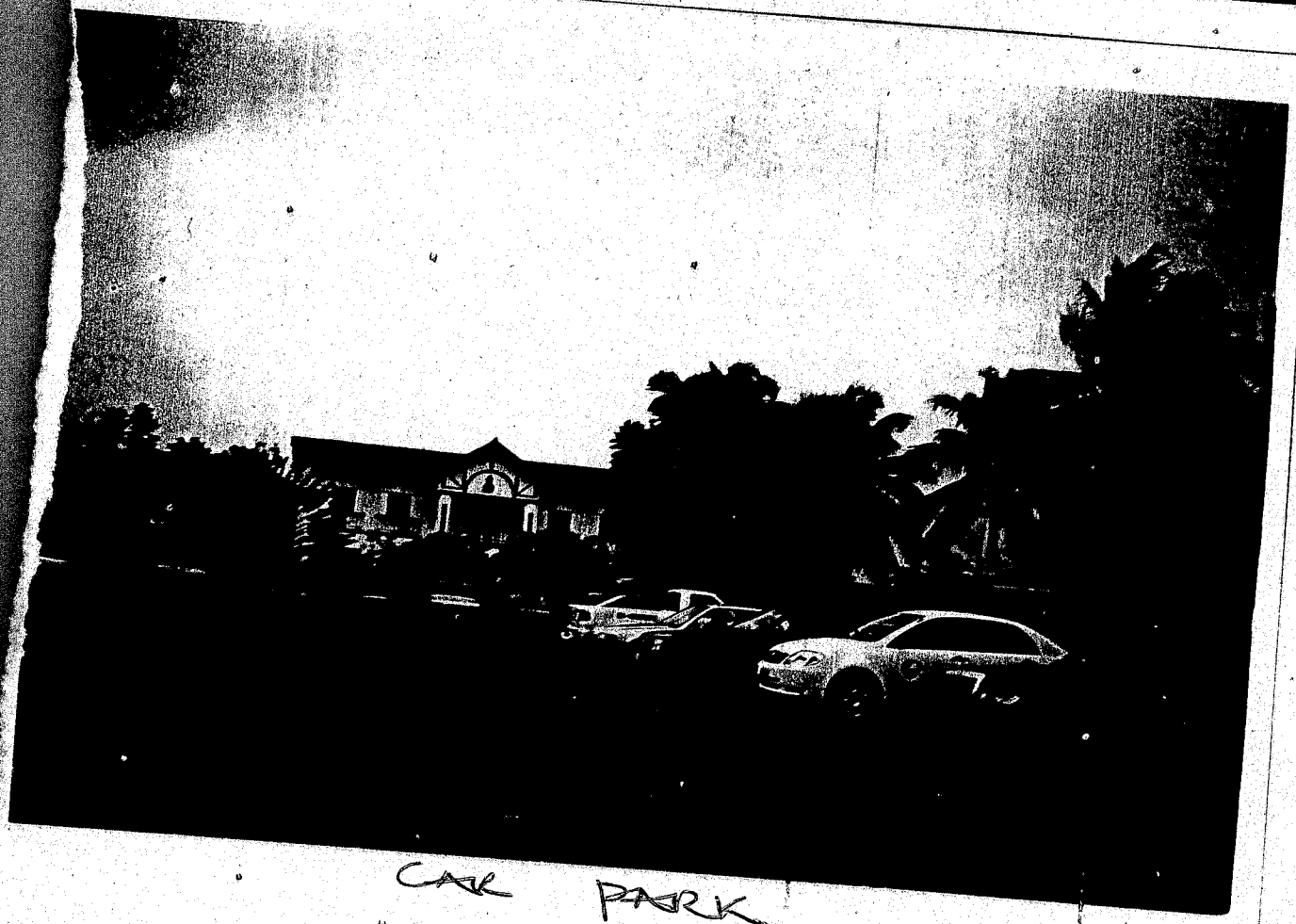
4.2.4 DEMERITS

(i) The landscaping of the hotel is quite small.

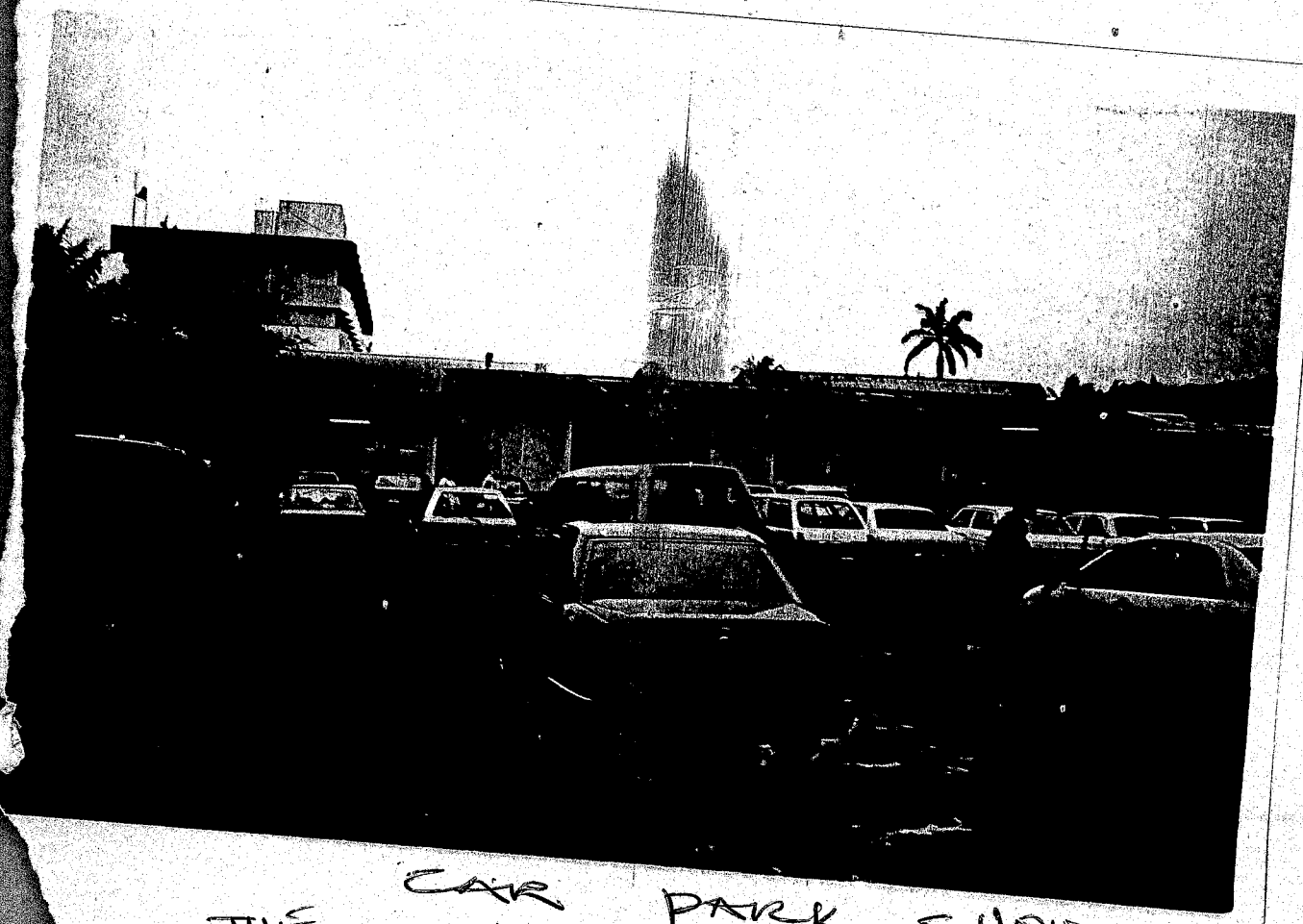
(ii) Bad division of space i.e. all facilities are separated from each other.

(iii) Inadequate parking spaces.

(iv) Bad maintenance.



CAR PARK



CAR PARK SHOWING THE MAIN BUILDING (HOTEL)

RECEPTION BLOCK

RESTAURANT

4.3 CASE STUDY THREE

PENNISULA RESORT, AJAH

4.3.1 DESCRIPTION

The resort is owned by chief Ahmed Onibudo one of the renowned tourist tycoon in the country and is located at Ajah, Eti-Osa local government, LAGOS – state.

The resort is 17 kilometers away from Victoria Island, the main link is through Epe-Lagos Expressway and 500metes off the expressway. There is no short time accommodation for the tourist because it does not open to individual tourist.

The resort has been fully developed. It is one of th4e private resort that has Adult facilities with no single children facility. The resort is used for different purposes such as, symposium, conference, and examination e.t.c. The accommodation is thirty-eight rooms

4.3.2 FACILITIES

- Administrative Block
- Restaurant
- Multi purpose Hall
- Swimming Pool
- Single standard / double standard rooms
- Executive white house
- Staff accommodation
- Mosque
- Owners personal building
- Generator House
- Fountain

- Conveniences

4.3.3. **MERITS**

i) Use of hard landscape elements like lampposts, swimming pools.

ii) Use of plasterboard for the walls and ceiling of the multi – purpose hall have ensured a good acoustical design.

iii) Use of corrugated asbestos for the root has helped the design because it is resistant to environmental factors like salt from the sea.

4.3.4 DEMERITS

- Most structures like the multi – purpose hall, the Administrative does not have any striking similarity.
- Inadequate recreational facilities i.e. indoor and outdoor for guests lodging at the resort.
- No specific facilities in place to entertain children
- Their charges are unrealistic and too expensive for their standard.

CHAPTER FIVE

5.0 DATA COLLECTION

5.1 PHYSICAL AND SOCIO – CULTURAL BACKGROUND

Geographical Location

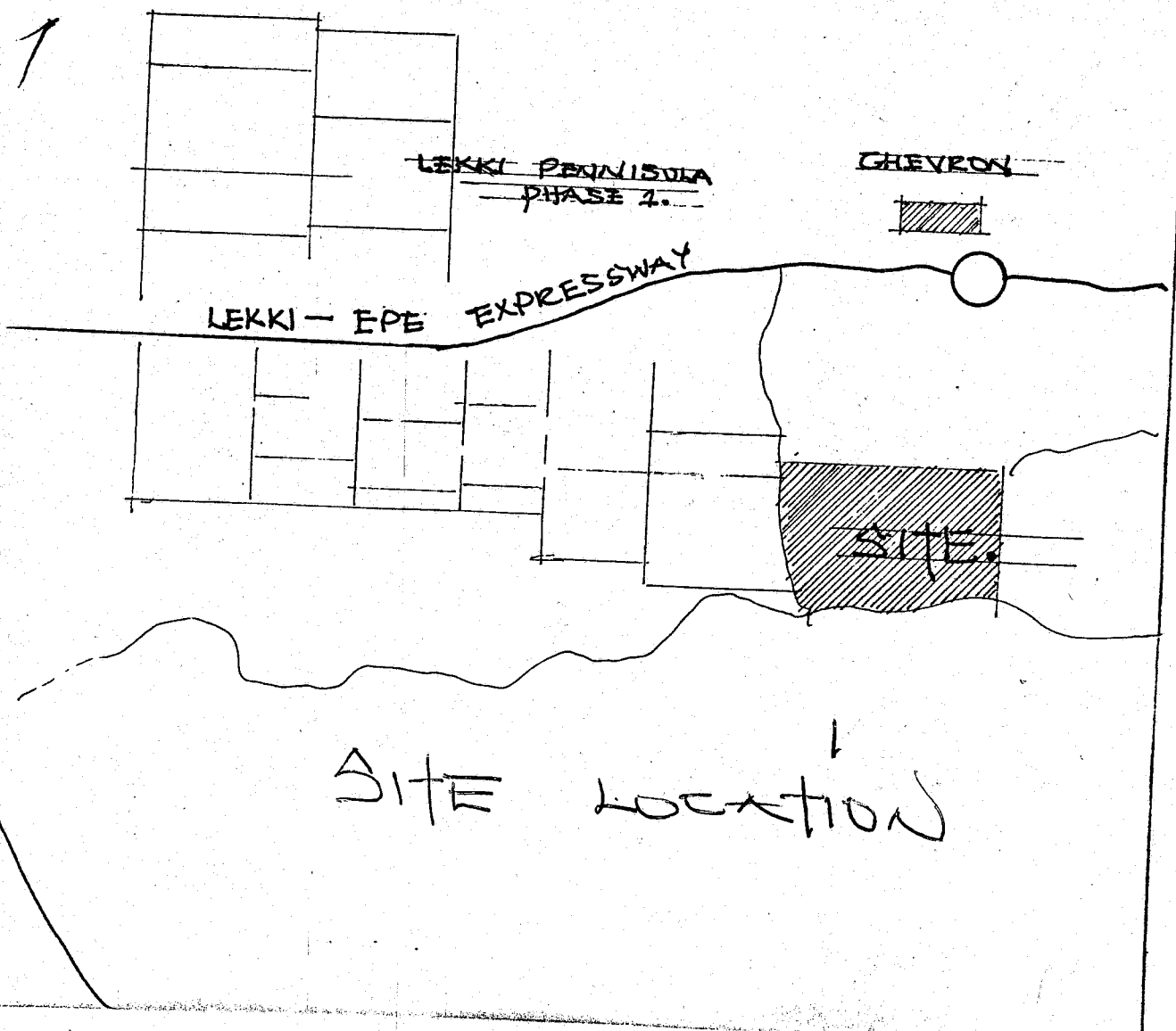
Lagos state lies in the South – Western part of the federal Republic of Nigeria on the west coast of Africa, the elongated state spans the Guinea coast of Atlantic Ocean for over 180 kilometres, from the Republic of Benin on the West to its boundary with Ogun State both in the north and east.

It extends approximately from latitude 6^0 29^{11} North to6^0 40^1 North, and from Longitude 2^0 45^1 East to 4^0 20^1 East. It occupies a land area of 3,577 square kilometres out of Nigeria's area of 923,768 square kilometres, which is a mere 0.387% of the area of Nigeria. Out of this 3,577 square kilometres about 35% actually consist of Lagoons, creeks and swamps'.

The proposed site is located at Alpha beach, Lekki a distance of about 20 kilometres from the heart of Lagos State. It has a high vegetation of overgrown grass and hedges with palm trees. The soil is mainly sandy and clayey in some parts and the wind pressure relatively higher than in other areas' of the town.

The beach serves as a source of revenue generation for the inhabitants of the neighborhood. Its' a point of relaxation for pleasure seekers.

1



SITE LOCATION

5.2 CLIMATE CONDITION

5.2.1 RAINFALL

Lagos State is associated with two seasonal conditions, namely; the rainy season, that extends from the months of April to October and the dry season which averagely spans from the months of November to March. Rainfall is always heavy during the rainy season of April to November with exception of a short August break.

Annual Rainfall Ranges from 1524-2031mm in the western half of the state to 2032 – 2540mm the extreme west have annual precipitation volumes of 1270mm to 1524mm only. The abundant rainfall makes the state a relatively drought – free zone in the federation.

5.2.2 TEMPERATURE

The coolest periods fall in the middle of the rainy season whilst the highest temperature occurs between November and March. The mean maximum annual temperature fluctuates between 30^0c (86^0F) and 23.8^0c (75^0F)

The tropical maritime wind; blowing south- west to the North – East, dominant for about three quarter of the year along the coast line. The harmattan winds from the Sahara desert. Sea breeze in the dry time.

5.2.3 HUMIDITY

The relative humidity of Lagos State is relatively high due to presence of water in Lagos State. The annual mean being about 58%. However, the relative humidity is higher in the early hours of the morning (7-10am) and lower in the afternoon hours (1-4pm).

5.2.4 WIND

The wind directions are intimately related to the seasonal positions of the inter – tropical convergence zone (I.T.C.Z) allover the country. During the wet season months, the south – west winds prevail as the front moves to the North, but as from October when the front move south- wards, the northeast wind sweeps in the dry season. The state experiences predominantly south – westerly wind and sea breezes all the year round

5.2.5 VEGETATION

Lagos state is identifiable with two main types of vegetation

(i) Swamp forest of the coastal belt

(ii) Dry lowland of the Rainforest.

(i) The swamp forests in the state are a combination of mangrove forest and coastal vegetation developed under the branchish conditions of the coastal areas and the swamp of the freshwater lagoon and estuaries.

The swamp forest is characterized by red mangrove trees, mangrove shrubs, raffia climbing palms.

The dry lowland rainforest has been modified by man. Yet this is the area of the state where such economically valuable trees are teak, tripoclinton seletrocylon (Avere), baclea wide rrchi (Opepe) and terminalina (Idigbo) are to be found.

5.2.6 GEOLOGY AND TOPOGRAPHY

Sedimentary Rocks of the lower cretaceous period occur widely in Lagos State. Also, basement complex of precambricam age, overlaid or red – yellow, red brown or red laterities of the tropical areas.

Topographically, the state lies entirely within the coastal plain, which is characterized by, sand banks, Lagoons and creeks.

5.3 SOCIO – CULTURAL LIFE

5.3.1 HISTORICAL BACKGROUND

When Nigeria was made a 12- state federation, the whole of Lagos was just those parts of Lagos Aworis. The earliest settlers on the Island were the Aworis, children of Olofin, which is a small Yoruba group, which resides on the east bank of River Ogun beyond the Lagoon. The Aworis were later joined by a group of benin warriors and some Yoruba people.

Lagos later developed into an important slave market and port in 1730 after the arrival of the Portuguese slave traders and by 1851, the population in Lagos had been diversified ethnically. By 1914, ethnic groups from all over West Africa were trooping into Lagos State. This being ensured by the development of roads and railways, the protection of escaped slaves by the British Administration and proclamation of Lagos as the capital of Nigeria.

The Aworis were the first to inhabit the area of Isheri Ebute – meta, Oto and Ido. their founding fathers were Ogunfrnmince a hunter and Olofin, they had several sons who are now collectively known as Idejo – the Land owing chiefs.

Between 1851 and 1861, Lagos has become on haven for sea farmers, a trading center and a potential source of raw materials for the growing Industries In Europe. This attraction brought about the infiltration of repatriates after the abolition of salve trade. The Aro (freed Yoruba captives and their relations from Sierra lone) and the Augda (Brazillian returnees) arrived in Lagos in the 19th century to settle in the areas of Breadfruit and

Olowoghowo, fortunately, they brought along with them skills acquired in Brazil. Where most of the were master builders carpenters and masons. They were able to give distinct characteristics of Brazilian architecture to their residential buildings now existing at Bamgbose and capos square, which form a large proportion of the Architectural richness of Lagos city. These buildings still stand in the area formerly occupied by the Portuguese.

5.4 ECONOMY AND COMMERCE

The economy of Lagos State forms the hub of Nigeria's national economy. This is not surprising in view of the states traditional role as the federal capital of the country before the federal capital was moved to Abuja.

The state has always led other areas of Nigeria in industrial production. Being a major sub-set of industrial enterprises in Nigeria, the assemblages of manufacturing establishments in Lagos State which features the structural characteristics exhibited by Nigerian manufacturers as a whole. Such characteristics include structural imbalance, high proportions of imported inputs and low capital utilization. e.t.c.

Further, wide ranges of small- scale or cottage industries exist in the state and have been growing remarkably since 1985. The prospects for further growth are high in these cottage industries but such potentials for future growth are not limited to them.

5.4.1 REVENUE PATTERN

Lagos State government revenue generation pattern is guided by the constitution of the Federal Republic of Nigeria as well as the various taxes earns in the country.

Despite the fact that such a large percentage of the nations commercial activities take place in Lagos, the state is still not industrial saturated. There are vast areas of undeveloped land in several local government. To this end an investment promotion council in collaboration with the state ministry of commerce and industry was established. Also the state government continues to assist small-scale enterprises in the area of credit facilities and management advisory services. One incentive foe development in the state is the establishment of promotional packages which includes free participation in trade fairs in Lagos and other state as well as the construction of additional industrial estates in Epe, Ikorodu, Kosofe, Badagry and Ifako-Ijaiye to serve small scale industries.

The state also has shares in reputable companies such as Guinness Nigeria Plc, Nigerian Breweries Plc. etc.

Also worthy of note is the fact that the state government amongst which are:-

i. Lagos Building Investment co-operation (LBIC)
ii. Lagos State Bulk Purchase Co-operation
iii. Lagos State Development and Property Corporation
iv. Lagos State Ferry Services
v. Lagos State Printing Corporation
vi. Lagos Horizon Publishing Nig. Ltd.

5.5 DEMOGRAPHIC DATA

Base on the 1963 national census, the population of Lagos State was put at 1,443,568, by the end of 1985, 7.3 million. Inhabitants were estimated using annual growth rate of 8% per annum in the rural areas with sparse –population.

Lagos State in particular is a constant victim of the effects of rural-urban shift in the country and is said to receive 300,000 people per annum or 25,000 people per month. By this rate and projection, the population of Lagos alone may exceed million by the year 2010.

The tables 5.5.1 and 5.5.2 gives the breakdown of the 1991 census, which is the last official head –count undertaken in the country and the projected population of Lagos State, 1987 – 2000.

Table 5.5.1

POPULATION OF LAGOS STATE ON THE BASIS OF THE 1991 CENSUS

LOCAL GOVCERNMENT AREA	MALE	FEMALE	TOTAL
Agege	343,456	306,818	650,274
Badagry	60,586	48,118	118,704
Epe	48,530	51,037	99,567
Eti-Osa	97,264	73,684	170,948
Ibeju-Lekki	12,139	12,686	24,825
Ikeja (including Alimosho)	340,968	298,794	639,762
Ikorodu	93,214	88,700	181,914
Lagos Island	82,121	82,231	164,352
Lagos mainland (Including Surulere)	458,131	411,470	869,601
Mushin (Including Oshodi/Isolo)	520,214	466,089	986,847
Ojo	538,214	473,594	1,011,808
Shomolu (Including Kosofe)	404,147	363,032	797,179
TOTAL:	**2,999,528**	**2,686,253**	**5,635,781**

Source: National population commission Lagos.

Table 5.5.2

PROJECTED POPULATION OF LAGOS STATE 1987 – 2000

END OF YEAR	METROPOLITAN Lagos (000)	NON-METROPOLITAN Lagos (000)	TOTAL OF LAGOS STATE (000)	METROPOLITAN LAGOS 25% of Lagos State
1987	7,178	779	7,957	90,21
1988	7,580	812	8,392	90,32
1989	7,989	847	8,836	90.41
1990	8,404	884	9,290	90.49
1991	8,747	914	9,704	90.55
1992	9,173	952	10,125	90.66
1993	9,565	988	10,553	90.64
1994	9,975	1,026	11,001	90.67
1995	10,406	1,065	11,471	90.72
1996	10,861	1,105	11,966	90.77
1997	11,342	1,147	12,486	90.82
1998	11,848	1,191	13,039	90.87
1999	12,384	1,236	13,620	90. 93
2000	12,949	1,283	14,232	90.99

Source: Lagos state plan 1980 – 2000 (Lagcs) p.3

5.6 TRANSPORTATION AND TRAFFIC FLOW

Lagos state polices concerning the transportation sector led to the establishment of a mass transit programme (Lagos state transport corporation), involving the integration of all modes of public transportation. It also involves private sector participation through the provision of tubes, types, batteries lubricates and other motor parts for sale at reasonable prices in other to keep transportation fares at affordable prices.

To back –up this policy, the state consisting of road, rail and water to ease the suffering of commuters.

5.6.1. WATER WAYS

The Lagos – state established its own fairy services in 1983 to complement the existing ones, which shuttles between Lagos Island and mainland.

5.6.2 RAILWAY

The railway system in the state in not well developed, despite this, the system provides skeletal intra state computer service between Iddo and Agege in the metropolitan area.

5.6.3 AIR

The state has the biggest and most modern International Airport in Nigeria. The Airport accounts for over 50 per cent of total air-passenger traffic in Nigeria.

5.6.4 TRAFFIC FLOW

Traffic congestion has almost been a serious problem in Lagos state, due to no doubt the industrial activities so prevalent in the area.

The earnest methods used to ease traffic flow in the state includes

(i). The creation of LASMA.

(ii). Installation and rehabilitation of streetlight.

(iii). Construction of axial roads, bridges and Expressways.

5.7 EXISTING LAND USE AND FUTURE TRENDS.

Lagos State occupies a land area of 3,5m square kilometers of the total landmass of Nigeria. It accommodates 5% - 8% 0f the nation population.

The Lagos State lands department is responsible for the use of land, both present and future use land allocation, policies as well as issuance and revocation of right of occupancy.

The land use in the state is basically divided into areas for residual, industrial, commercial, institutional development and recreational purposes.

Projects such as the urban renewal scheme, the new towns development Authority and the Lekki pennisula scheme have been established for land development purpose e.g design of parks, the establishments of new towns, provision of infastructural facility in Government estates, site selection and construction.

The Lekki Pennisula scheme is the most recent of all developments established for the provision of adequate space for growth of population and consists of an urban residential

development and tourist development along the Atlantic coastline (Lekki beach) and agricultural developments including areas for forest and swamps.

CHAPTER SIX

6.0 SITE ANALYSIS

Site analysis is very important for any design to be functional and physically balanced with the site characteristics. Therefore, in carrying out the site analysis for this design the following elements or features will be critically analyzed.

(i) Accessibility
(ii) Topography
(iii) Vegetation
(iv) Soil
(v) Temperature
(vi) Rainfall
(vii) Wind

6.0.1 ACCESSIBILITY

The site can be easily accessed from the Epe-Lekki expressway. In addition to this, due to its location on the coastal line it can also be easily accessed from other coastal regions through ship, ferries

6.0.2 TOPOGRAPHY

The site is vast and the shape is pretty regular but for the coastal line, which is streamlined. The site has a slight fall to the coastal side and is consequently drain in this direction

6.0.3 VEGETATION

The sparse vegetation on site is a reflection of the quantify on site is a reflection of the quantify of rainfall and texture of soil. The site is made up of grasses and some

patches of trees that could be used for shading, wind breakers and prevention of wind.

6.0.4 SOIL

The proposed site constitutes sandy soil with some patches of alluvial loamy soil, which can facilitate the growth of plants. Since the compatibility of soil is very minimal, the bearing capacity of the soil will therefore receive the design structures of the site.

6.0.5 TEMPERATURE

The site experiences a bearable temperature at peak due to it proximity to the coastline. The site experiences more of the seabreeze, thereby making the application of natural ventilation in the buildings very effective.

6.0.6 RAINFALL

The site experiences rainfall throughout the Year, the Quantity not too nigh. Between November – February, the site experiences dry season.

5.0.7 WIND

The site is influenced by two presenting winds.

(i) North – east trade wind

(ii) South – west trade wind

The North – east trade wind blows from the north – east direction towards the south wards. It is a dust laden wind that brings dryness and harmattan to the site.

The South – west wind blows from the south –west direction towards the Northwards. It is moist laden which brings

torrential downpour followed by occasional thunderstorm on Site.

6.1 CRITERIA FOR SITE SELECTION

There are several factors being considered before choosing the sites. These factors include:

i. ENVIRONMENTAL FACTORS
ii. PROXIIAITY
iii. CONFORMITY WITH LAND USE PATTERN
iv. AVAILABILITY OF SERVICES SUCH AS ELECTRICITY WATER AND FORE SERVICE STATION.

6.1.1 ENVIRONMENTAL FACTORS

The environmental free zone and quiteness of the site makes it really ideal for a resort centre.

6.1.2 PROXIMITY

The resort centre will be a really good place for relaxation and a place for fun seekers. The proximity of the site to Victoria garden city, Ikoyi and other neighboring towns like Epe makes the site very suitable.

6.1.3. CONFORMITY WITH LAND USE

It has been discovered that the site is in conformity with the land marked for recreational purpose development of the state.

6.1.3 AVAILBILITY OF SERVICES

Availability of public utilities are always Considered when selecting site for Recreational purposes these services enable the efficient and Steady running of the resort centre.

6.2.0 SITE LOCATION

The proposed site is located at alpha beach under Ibeju – Lekki local government area. The site has been by the state government.

6.3.0 SITE CHARACTERISTICS (INVENTORY)

The site is a virgin land, yet undeveloped. The site is characterized with sand, unsolidicated sandstorms and alluvial materials. Some parts of the site was formerly used for recreational purposed with sheds around for people to relate in and hare a glimpse of the ocean.

6.4 ENVIRONMENTAL PROBLEM

The site is free from any industrial waste and all other forms of pollutant that can generate noise, smoke, odour, and chemical waste.

6.5 SITE APPRAISAL

In summary, the site selection criteria and its analysis shows that the site could be regarded as the most suitable for the resort center.

CHAPTER SEVEN

7.0 DESIGN CONCEPTS AND CONSTRUCTION

7.1 CONCEPTUAL ANALYSIS

Architectural concepts are responses to important symbolic design themes, and the formulation of these concepts and its development is a logical sequence in response to those symbolic themes. But these concepts could be of some basic alternatives. The nature of the environment can be developed based on the function of the design.

Conceptual analysis aims at arriving at a medium by which all aspects of the design will symbolize the design goals and express the function for which they are designed and at the same time relate to the environment.

The building design concept therefore aims at satisfying the design aims and objectives and also symbolizes the function of the buildings.

Therefore the concept to be employed in this design will be based on its function.

The form on which the design will take depends on the functionality of the whole concept, which applies to the site plan.

7.2 CONCEPT FORMAULATION

The site concept is based on an integration of functionality and circulation.

These elements are arranged in such a way that creates inter penetrating and inter dependent spaces. This is achieved by the adoption of simple forms balance, save cost and encourages maximization in the use of space

An integration of the various elements on the site plus the road network depicts circulation and accessibility leading to the evolution of a form for the site plan.

This concept emphasizes a constructive juxtaposition of forms that represent functional areas and spaces, which create a central focus for circulation, and distribution of facilities or activities thereby achieving a compact design.

7.3 SITE PLANNING

Site planning in plain words is the disposition of space for appropriate use, the position of a structure to provide effective relationship with another. It also involves the provision of both pedestrian and vehicular access to structures in a safe manner, the design of services, walkways, streets and parking facilities and also enhancing of the site through landscaping.

Zoning on site aims at achieving a layout that creates a sensible relationship of facilities within the village.

It should be noted that it's what the tourist see around them that influences them, so the site should be beautifully landscaped with very cool elements.

The resort is divided into four main zones

(i) Recreational

(ii) Accommodation

(iii) Administrative

(iv) Sport

7.4 DESIGN CONSIDERATION

ACCOMMODATION UNIT

The Accommodation for tourist on site is basically divided in two

(i) The class A Accommodation

(ii) The class B Accommodation

The class A comprises of 2 Bedroom chalets while the class B comprises of a single room chalet with facilities such as lounge, veranda and toilet.

RECREATIONAL UNIT

Recreation is any Activity, which improves the physical and mental alertness of an individual.

Activities on site amongst other includes

(i) surfing

(ii) polo

(iii) basket ball

(iv) swimming e.t.c

7.5 SPACE REQUIREMENT

	FUNCTION	NO. OF UNIT	AREAS/M^2	TOTAL AREA
A	ADMIN. BLOCK			
	Offices	6	20	120
	Toilets	2	6	12
	Maintenance	1	12	12
	Receptions	1	30	30
B.	Generator House	1	25	25
C.	Auditoriums	1	300	300
	Store	1	6	6
D.	JUNIOR STAFF ACCOMMODATION			
	Rooms	42	9	378
	Bathroom	24	3	72
	Toilets	18	3	54
	Receptions/lobby	1	48	48
	Main Lounge	1	10	10
	Courtyard	1	R20	R20
E.	COTTAGE HOSPITAL.			
	Reception/Dispensary	1	32	32
	Emergency	1	48	48
	Room	1	78	78
	Store	1	9	9
	Doctors Room	3	12	36
	Lab.	1	15	15
	Waiting Area	1	72	72
	Toilets	14	2.2	30.8

F.	**CLASS B. ACCOMMODATION**			
	Bedroom	**1**	**16**	**16**
	Bath/Toilet	**1**	**3.6**	**3.6**
	Veranda	**1**	**7.2**	**7.2**
	Lounge	**1**	**16**	**16**
G.	**CLASS A. ACCOMMODATION**			
	Bedroom	**2**	**16**	**32**
	Bath/Toilet	**1**	**4**	**4**
	Veranda	**1**	**7.2**	**7.2**
	Lounge	**1**	**16**	**16**
H.	**CINEMA**			
	Main Hall	**2**	**R10**	**R20**
	Stage	**2**	**20**	**40**
	Ticket Chock	**2**	**20**	**40**
	Ticketing office	**1**	**30**	**30**
	Project Room	**1**	**15**	**15**
	Bar	**2**	**25**	**50**
	Toilet	**10**	**2.2**	**22**
	Shops	**2**	**12**	**24**

7.6 MATERIALS USED
METAL

Metals are heterogeneous materials formed under intense temperature. Metals could be classified into

i. ferrous metals

ii. non-ferrous metals

Ferrous metals include steel, they are heavy.

APPLICATION :- They are used as structural elements as well as a range of building products such as windows, doors and fastening.

Non ferrous metals include aluminium, copper and lead, e.t.c. They are relatively soft but strong, lightweight and also workable.

APPLICATION: -They are used as extruded forms in aluminium windows, doors and roofs. Copper could similarly used as electrical wires and flashing as sheet forms while lead is used as a plumbing material.

ii. **CONCRETE**

Concrete is a mixture of cement, fine aggregate, coarse aggregate and water which sets to form a hard stone like material.

Concrete is weak in compression but strong in tension, it can be pressurized in-situ or reinforced pre-cast.

APPLICATION:-Concrete is used in the construction of foundation footings, floor slabs and roof decks. Its plastic in nature and workability allows its use for almost any form of structure whether circular, square, rectangle or any other form or shape.

Iii **WOOD (TIMBER)**

Timber can be classified into soft and hard wood, which is an indicator of their relative hardness, softness, or strength.

APPLICATION:- Timber is mostly used for construction as propping materials, centering doors, windows decks and floors.

iv GLASS

Glass is an amorphous material that has under gone great pressure. It is characterized by its transparency, brittleness, hardness and chemical composition. They could come in sheet form block form, or as a facing glass.

APPLICATION:- It's utilization is dependent on its purpose. It could be for door, window and even as walls.

7.7 CONSTRUCTION

The construction of this project starts from substructure up to roof level, of the structures on site and it involves the following:

i. SITE CLEARANCE

This is the first stage of the project it could also be the preliminary stage. It involves the removal of grass, shrubs, and trees that are not wanted on site

ii. FOUNDATION

This is the base on which the building rests. Its purpose is to transfer load of a building to the surrounding ground.

The factors that determine the type of foundation are

i. Soil type

ii. Cost limitation

iii. Storey height

iii WALLS

Walls are vertical elements of a building, which acts as barriers for external conditions.

Walls could be load bearing or non-load bearing walls (partition wall). They are erected by laying sandcrete blocks with the help of cement mortar to hold them in position. These layers of blocks are plastered and painted to give it a better appearance.

Bricks are sometimes used instead of the sandcrete blocks.

v. DOORS AND WINDOWS

Door and windows are provided for physical visual and light penetration into building interiors while enclosing the interior space.

vi. ROOF

Simple pitch roofs with long span aluminium sheets are used in most of the unit due to the nature of the project as to cut cost.

Vii FINISHES

A. FLOOR FINSHES

Floor finishes used include terrazzo, carpets, rugs and ceramic tiles

B. WALL FINISHES

The walls are to be painted with light cool colours such as cream and dirty brown.

Skirting is to be used .

C. CEILING FINISHES

Board finishes are used for the ceiling. These boards should be able to control the temperature within a room, i.e. they have thermal insulating properties.

CHAPTER EIGHT

8.0 DESIGN SERVICES

Services within a building needs proper care and should be conveniently manipulated both to deliver and conform to the nature of the building and its functions.

8.1 ELECTRICITY AND LIGHTING

The supply of electricity to the site is not a problem since there are existing structures around the site with "NEPA" cables very close to site where electricity could be tapped easily.

The electrification of the buildings are to be done by conduit system to conceal all cables and wires and a standby generator is located on site .

8.2 HEATING, COOLING AND VENTILATION

Much effort is been made to achieve as much as possible, natural ventilation system within building, which will reduce cost, which will also reduce energy consumption.

In achieving thermal comfort a few considerations have been made which includes choice of building materials, landscape features that will provide shades, treatment of openings in buildings.

8.3 WATER SUPPLY

There is a great need for adequate water supply to all parts on site, including adequate water supply to all parts on site, including storage facilities. The service pressure of the water

system should be great enough to absorb pressure due to vertical travel and friction.

8.4 DRAINAGE AND SEWAGE DISPOSAL

All plumbing system are aligned and properly planned in such that it allows for easy maintenance, cost control and concealment.

The sanitary drainage will require large pipes and adequate installation space.

8.5 REFUSE DISPOSAL

Collection bins are located at strategic points, which helps for easy conveyance off the site.

8.6 ACOUSTICS

Sound travels in a wave-like manner and needs a medium to travel, this sound produced could be constructive or destructive,

The buildings are planned in such a way that sounds produced are properly managed by use of materials to avoid sound reverberation.

8.7 FIRE SAFETY

To avoid fire out breaks, fire extinguishers have been placed at strategic positions within all the building.

To reduce the chances of fire out-breaks the furniture within the buildings will be coated with chemicals that will prevent them

from burning easily.The buildings will be fully guarded with fire alarm systems.

8.8 SECURITY

The site will be fenced and there will be security men within the site.

There will be a police post beside the site.

8.9 MAINTENANCE

Maintenance programmes are needed to achieve the maximum benefit of the facilities on site.

Due to this, maintenance programmes to weekly monthly or annual maintenance programmes.

8.10 SOLAR CONTROL

Solar control is needed to prevent discomfort both within the building and on site.

Shading devices will be employed to reduce penetration within building .

CONCLUSION

Lagos resort centre Alpha Beach Lekki is expected ultimately to boost the tourism trade in Lekki, Lagos State, which will generate funds for the State.

The resort will cater for tourist and will provide all hotel services, which includes, Accommodation, maid service, Radio and television, parking spaces retail shops and recreational athletic activities. The hotel will also contain holiday business facilities, which will serve as an important source of income for the hotel i.e meeting rooms, which will be used for conference and lectures.

The resort has also been designed to pioneer the physical, economic and social development of highly ranked commercial services.

In order to provide these standard services, effective circulation and landscaping is necessary, taking into consideration the scenery of the beach surrounding on site. This will be adequately taken care of in the course of this project, laying more emphasis on structural stability of the hotel building and its facilities.

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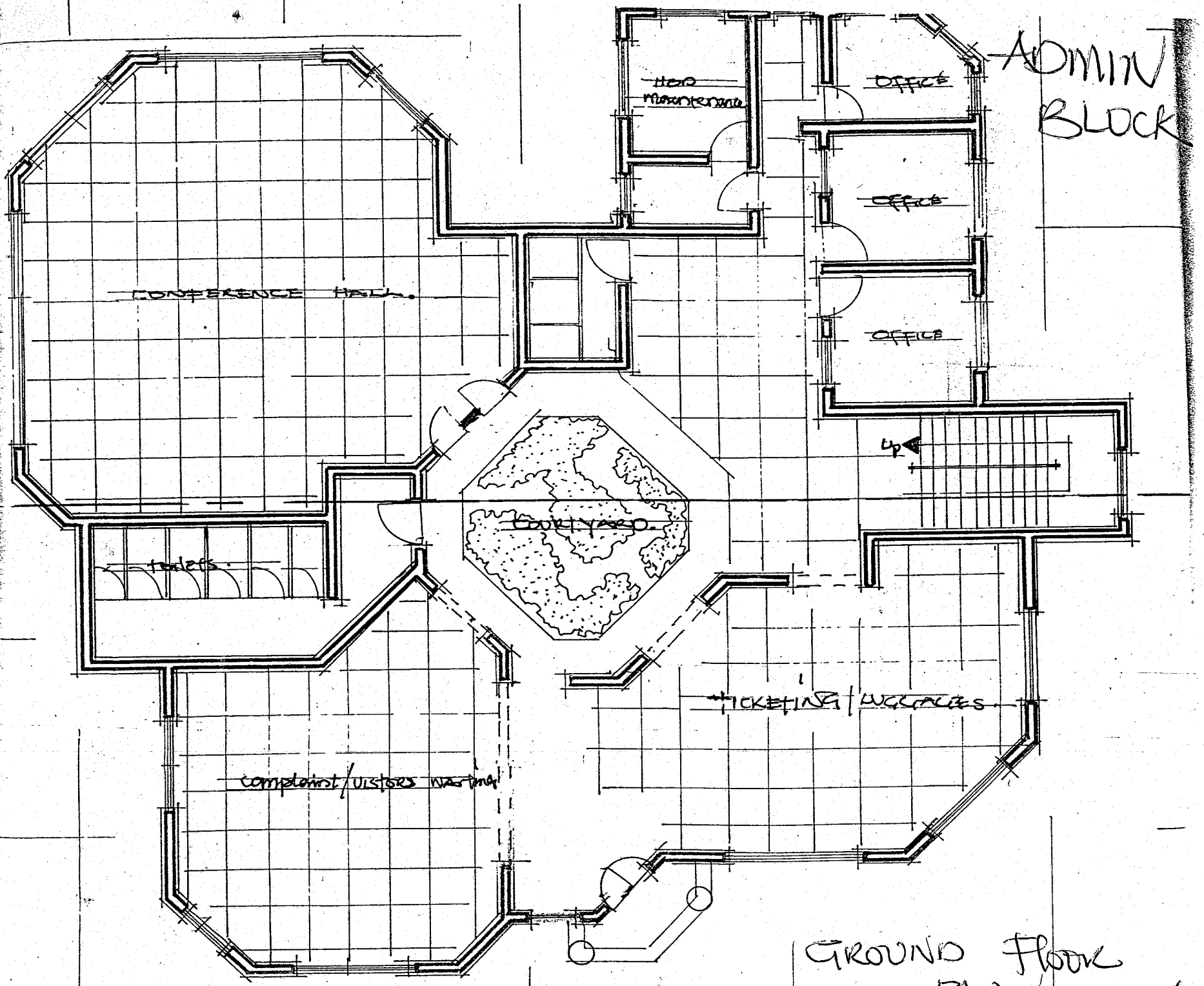
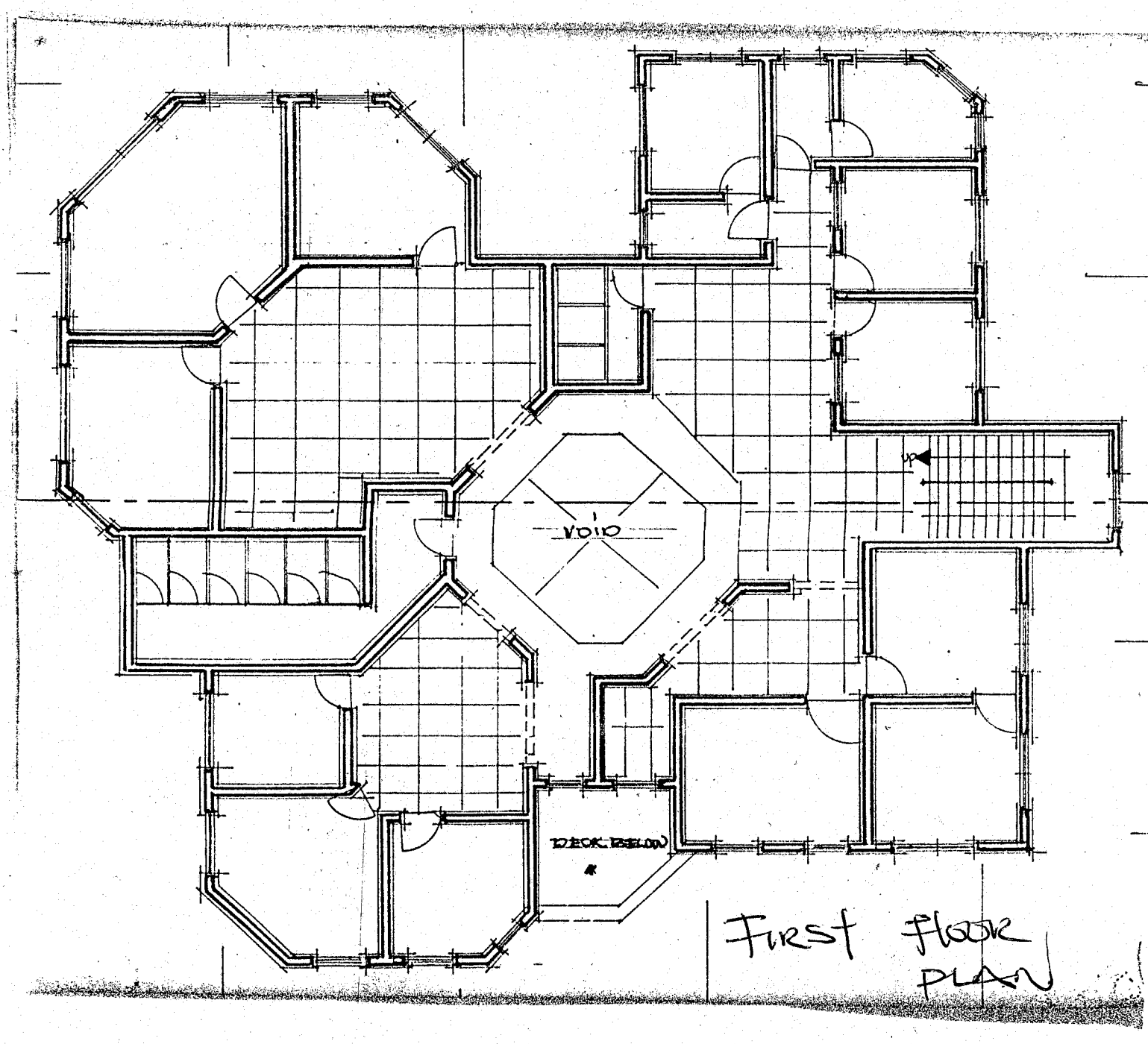
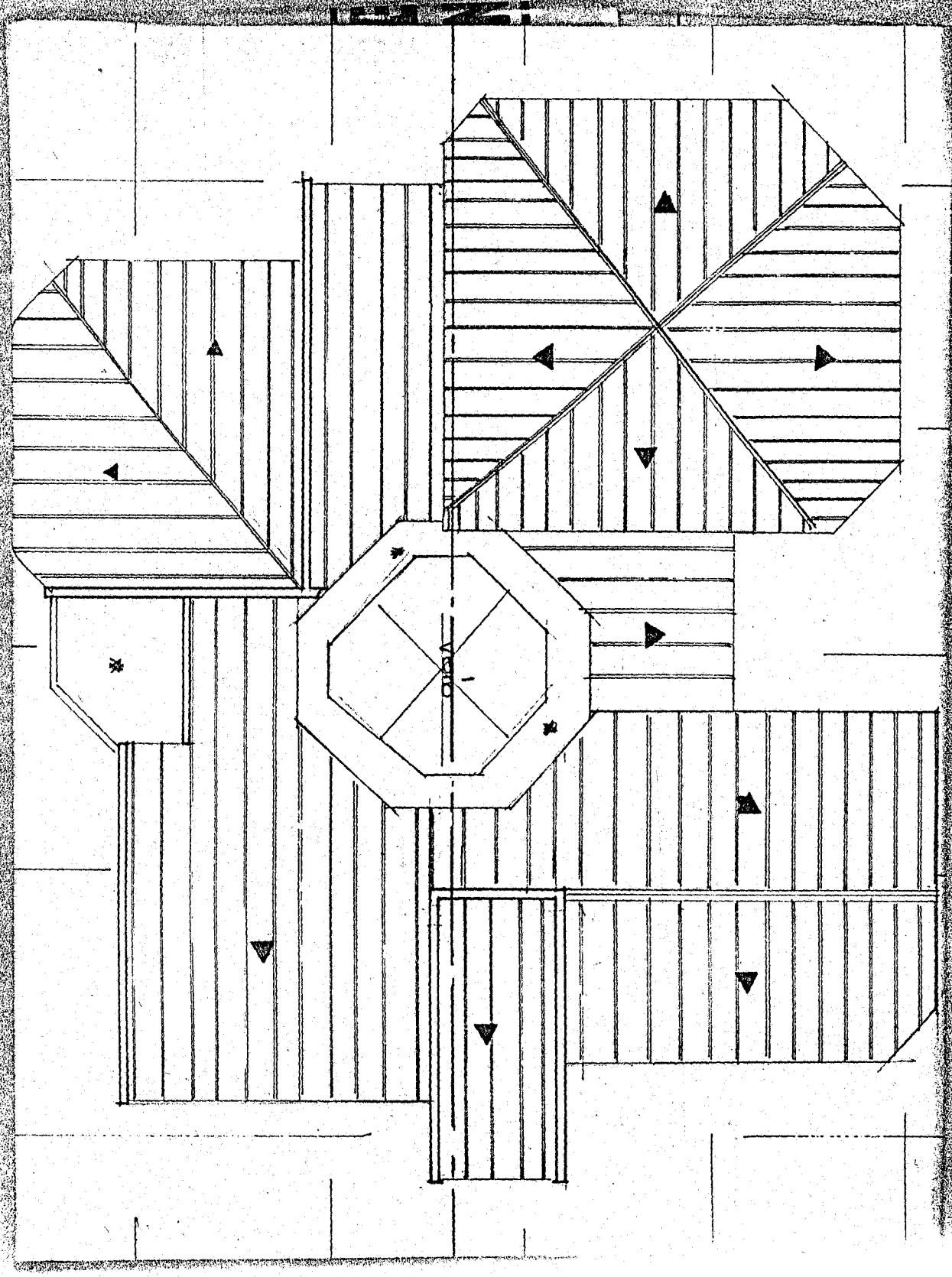
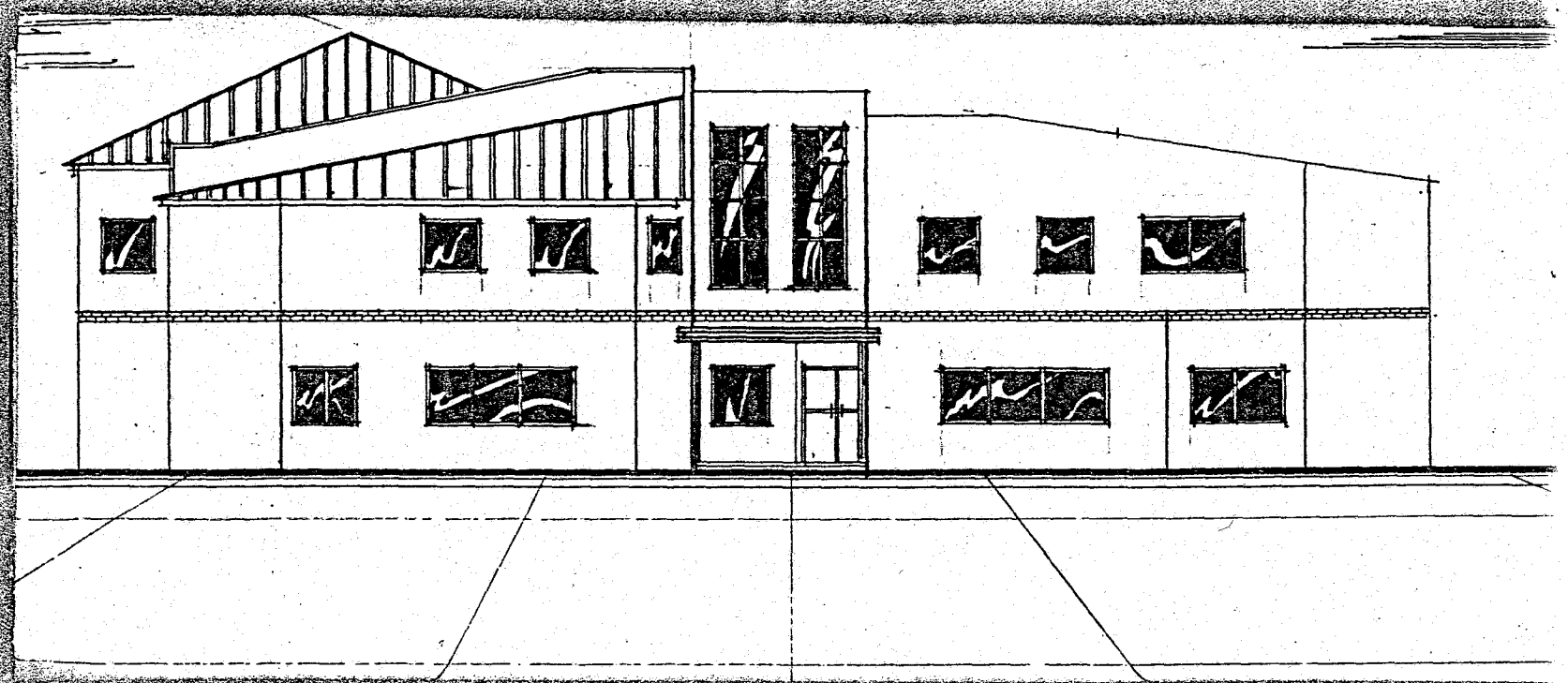
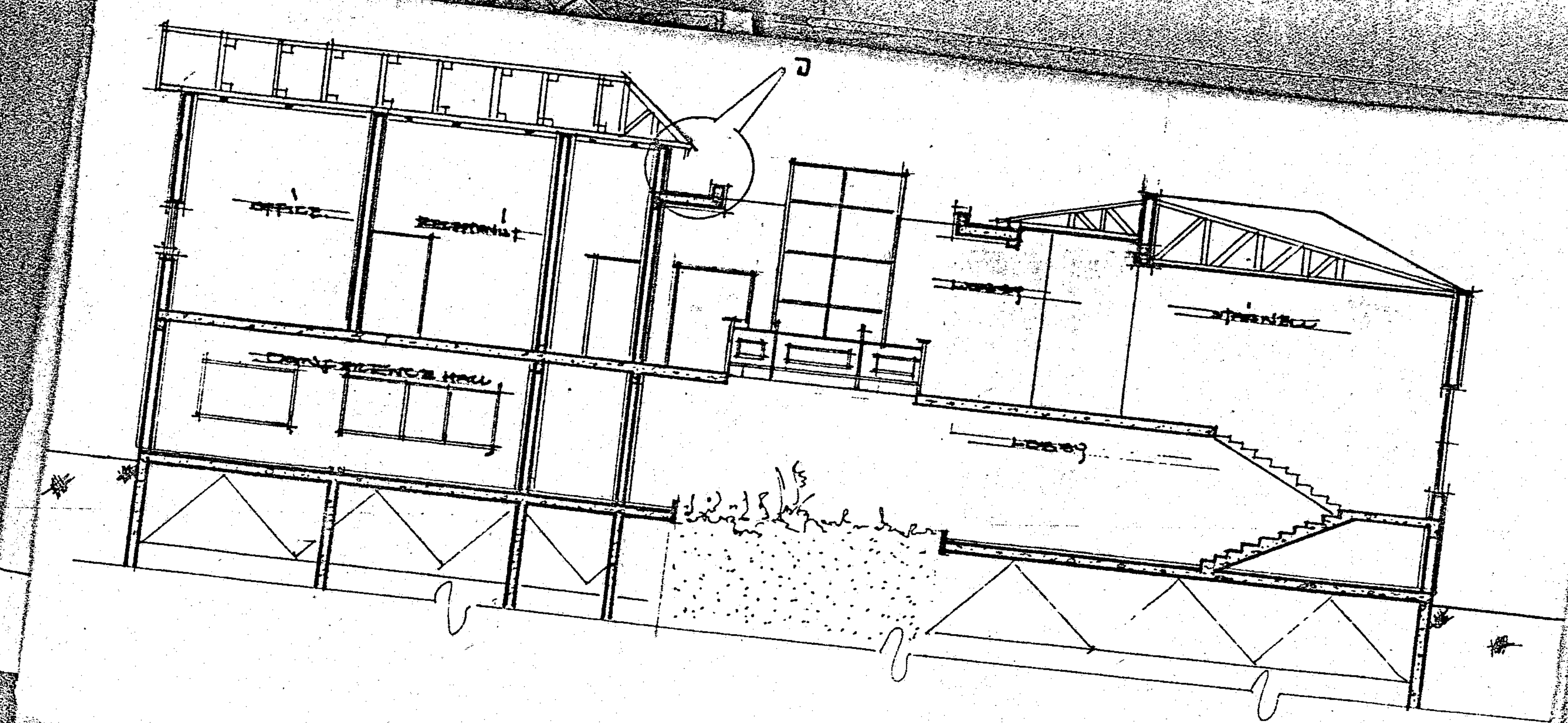

ADMIN BLOCK
HEAD maintenance
OFFICE
OFFICE
OFFICE
CONFERENCE HALL.
Up
COURTYARD.
toilets.
TICKETING / LUGGAGES.
complaints / visitors waiting
GROUND FLOOR PLAN

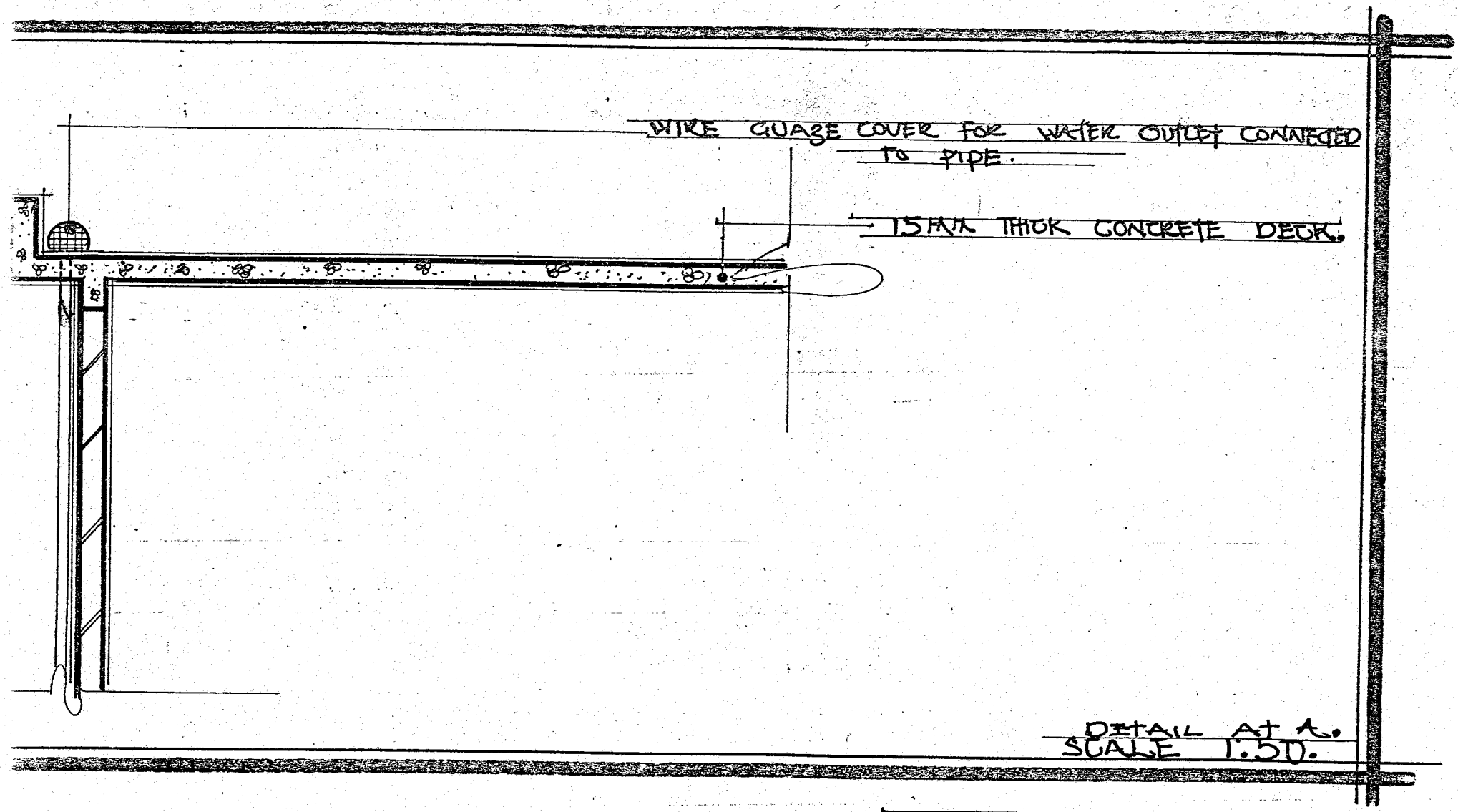


FIRST FLOOR PLAN



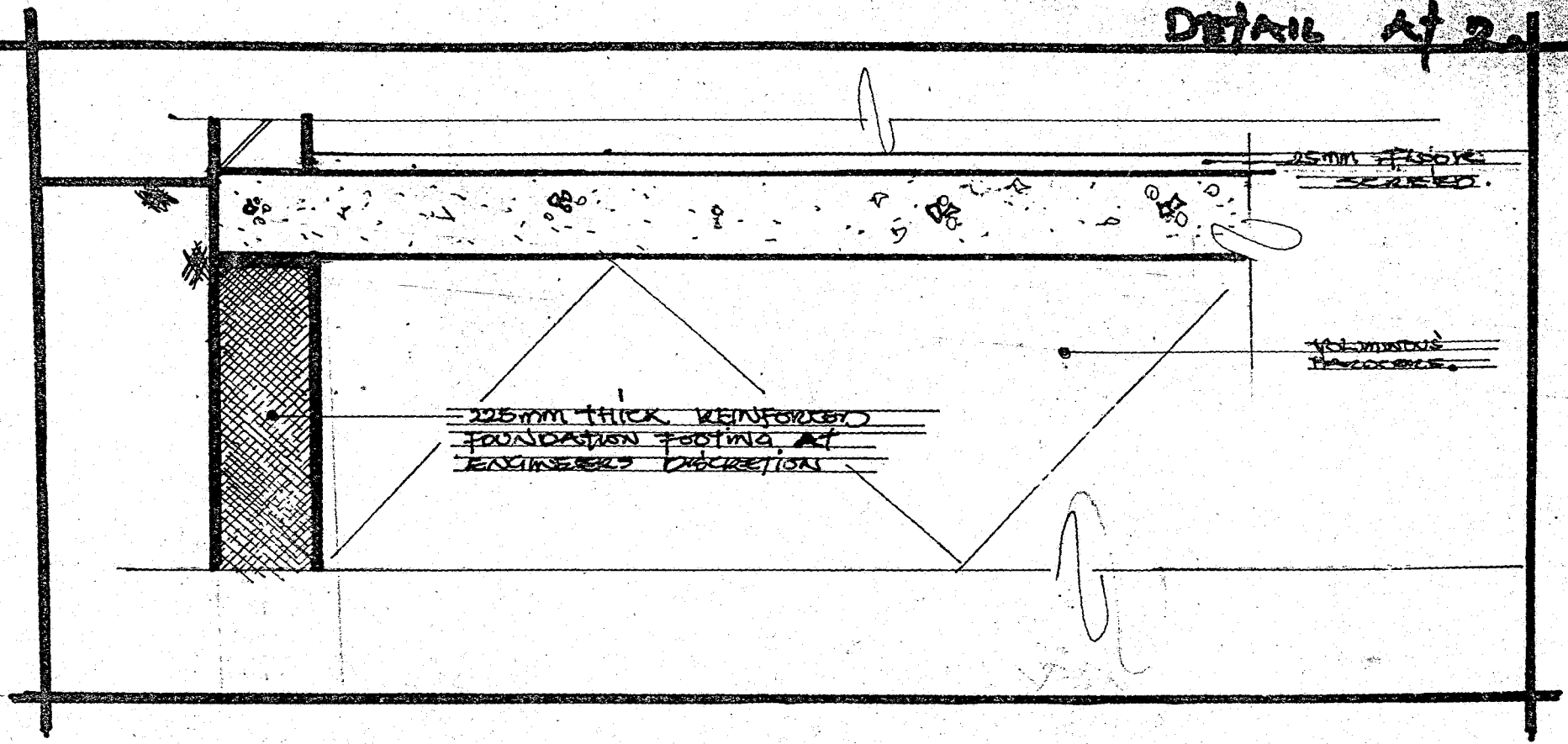



OFFICE
RESTAURANT
CONFERENCE HALL
LOBBY
LOBBY

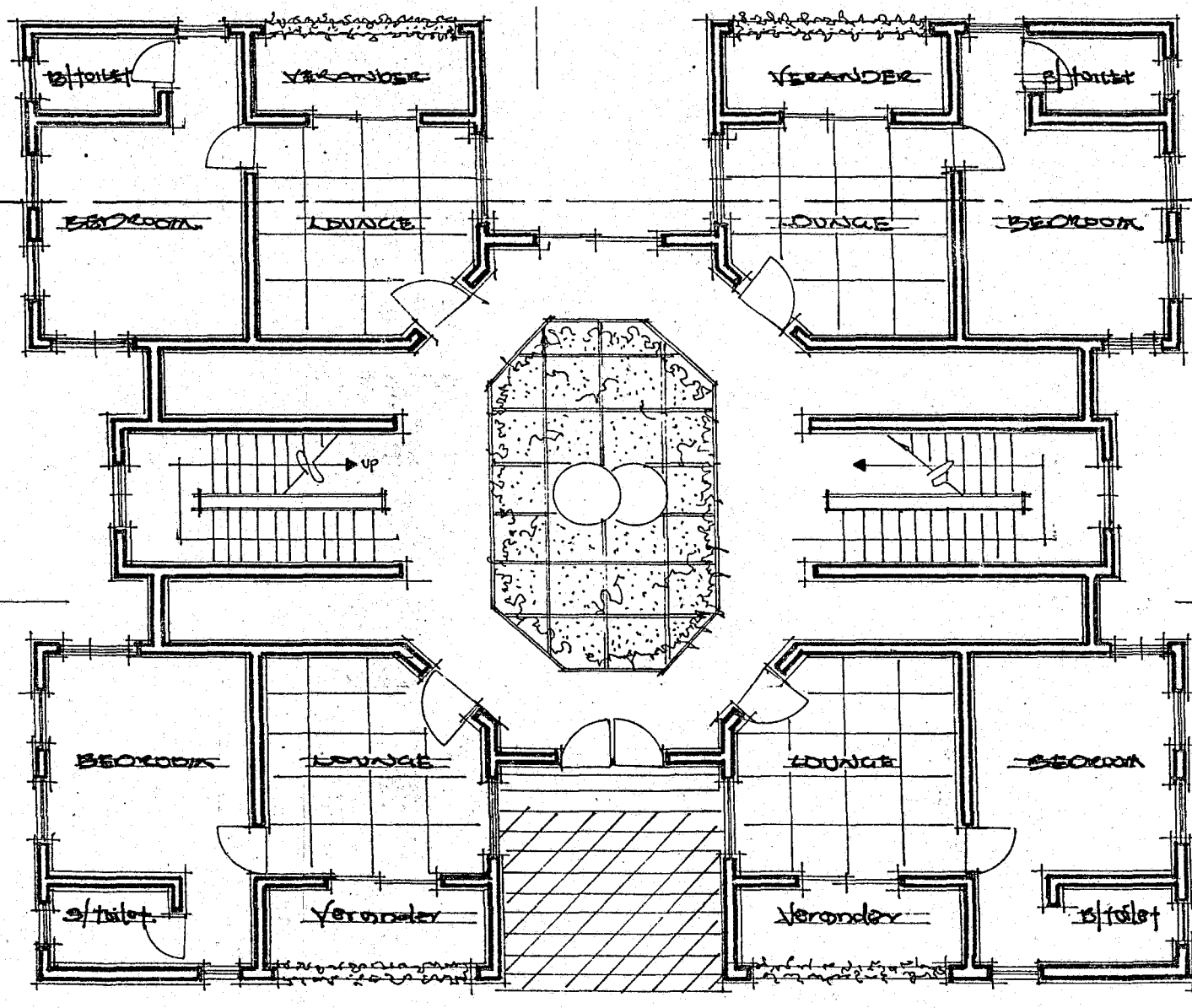


DETAIL AT A.
SCALE 1:50.

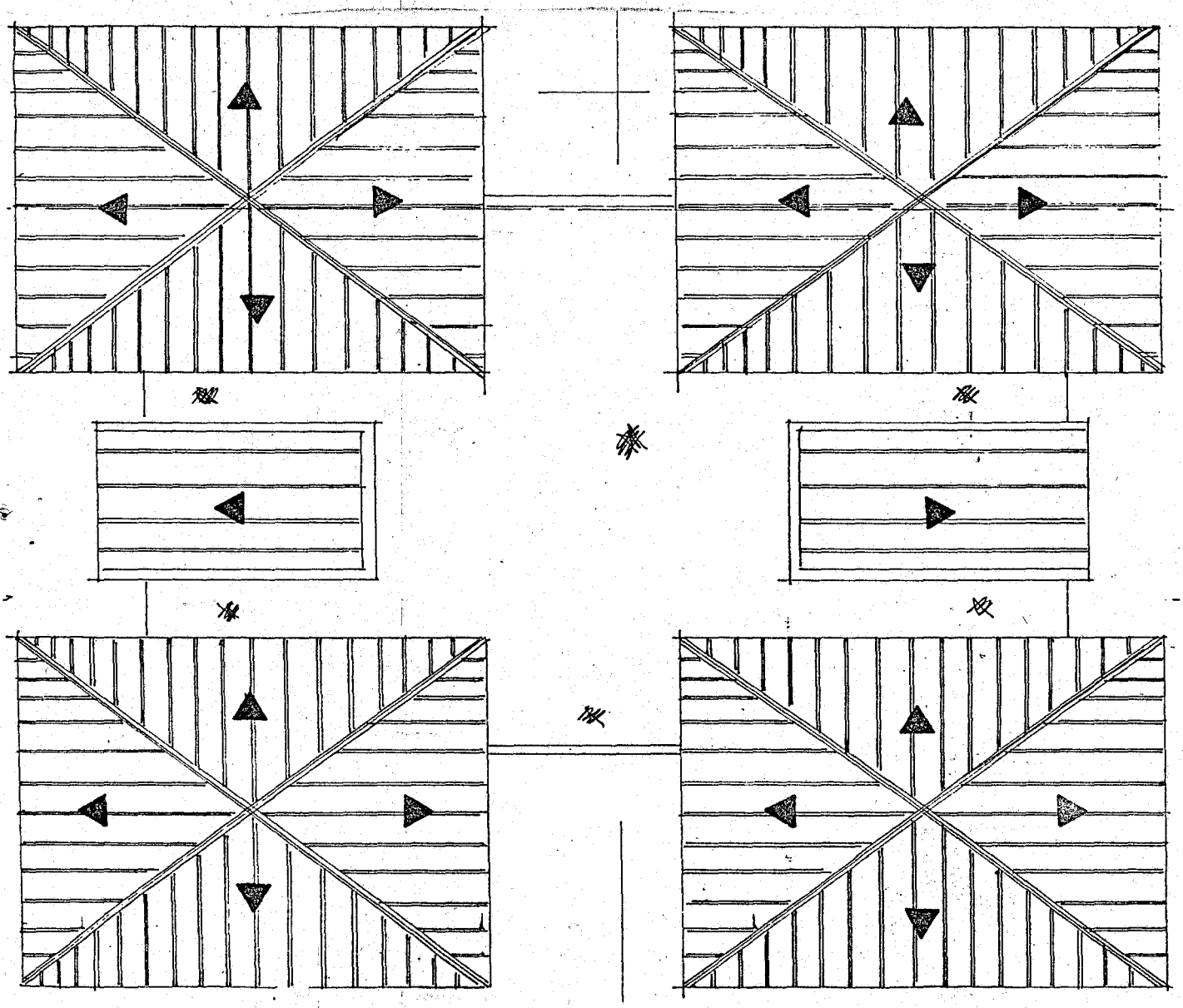
DETAIL AT 2.1


225mm THICK. REINFORCED
FOUNDATION FOOTING AT
ENGINEER'S DISCRETION

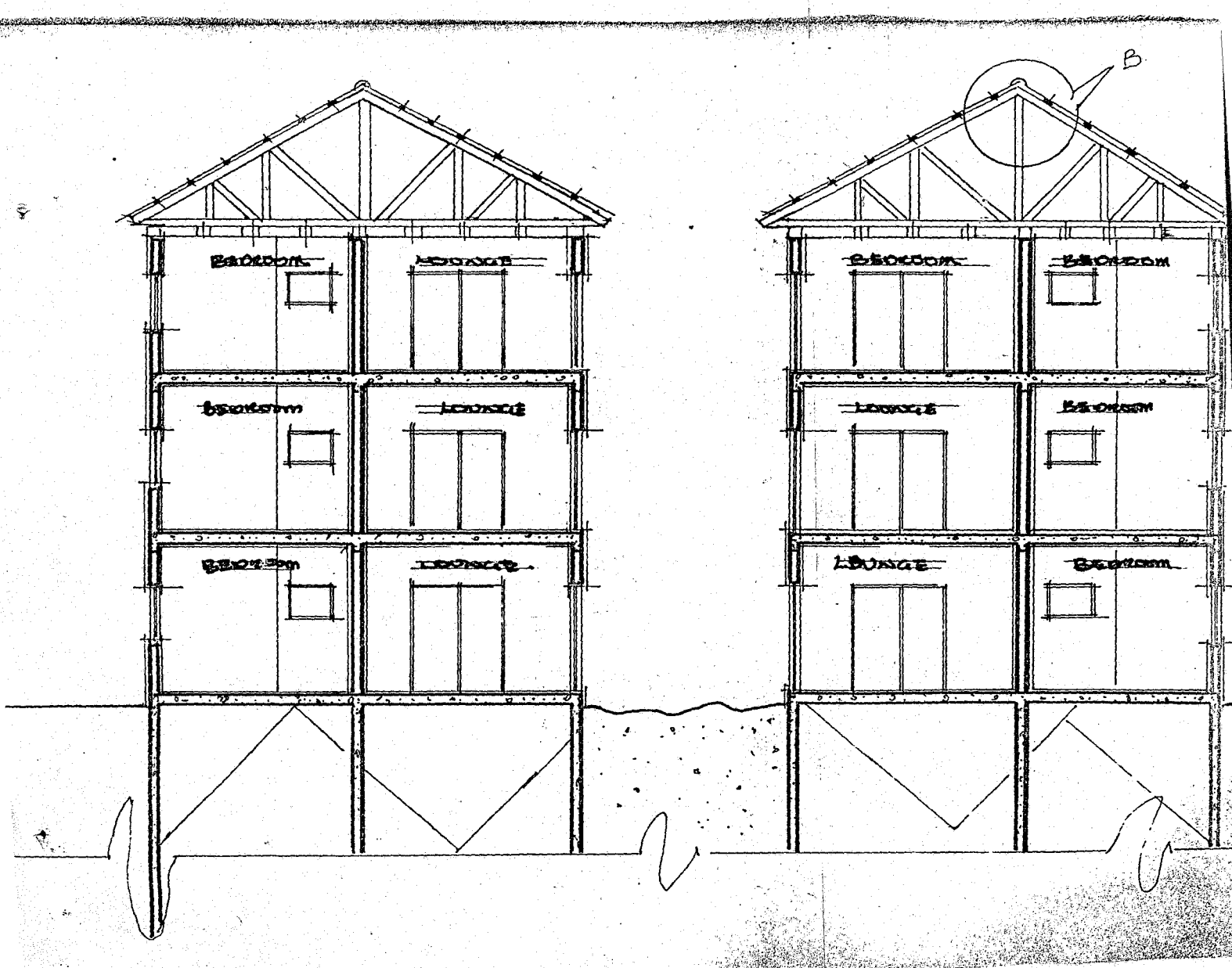
CLASS B ACCOMMODATION



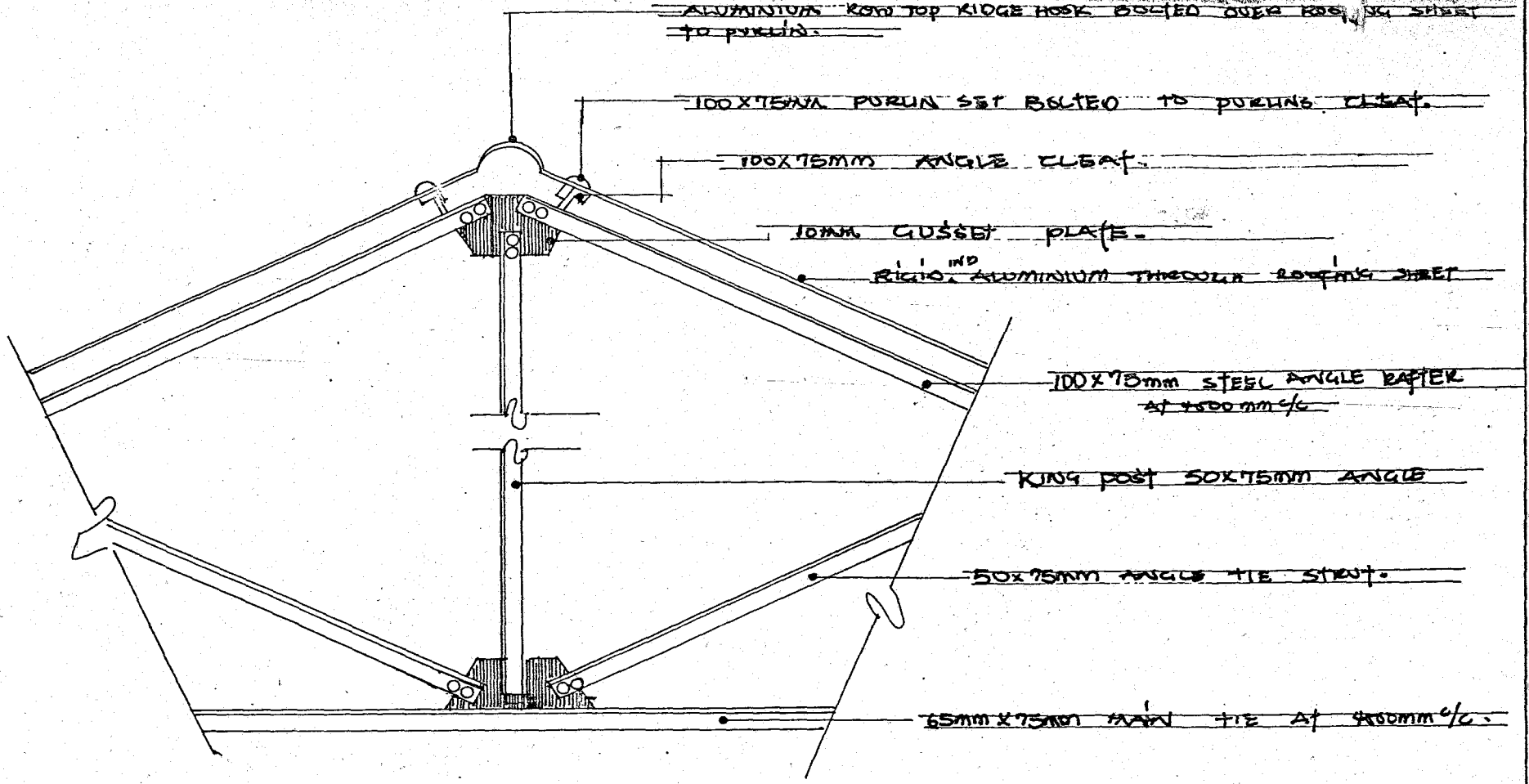
FLOOR PLAN



ROOF PLAN



SECTION X-X

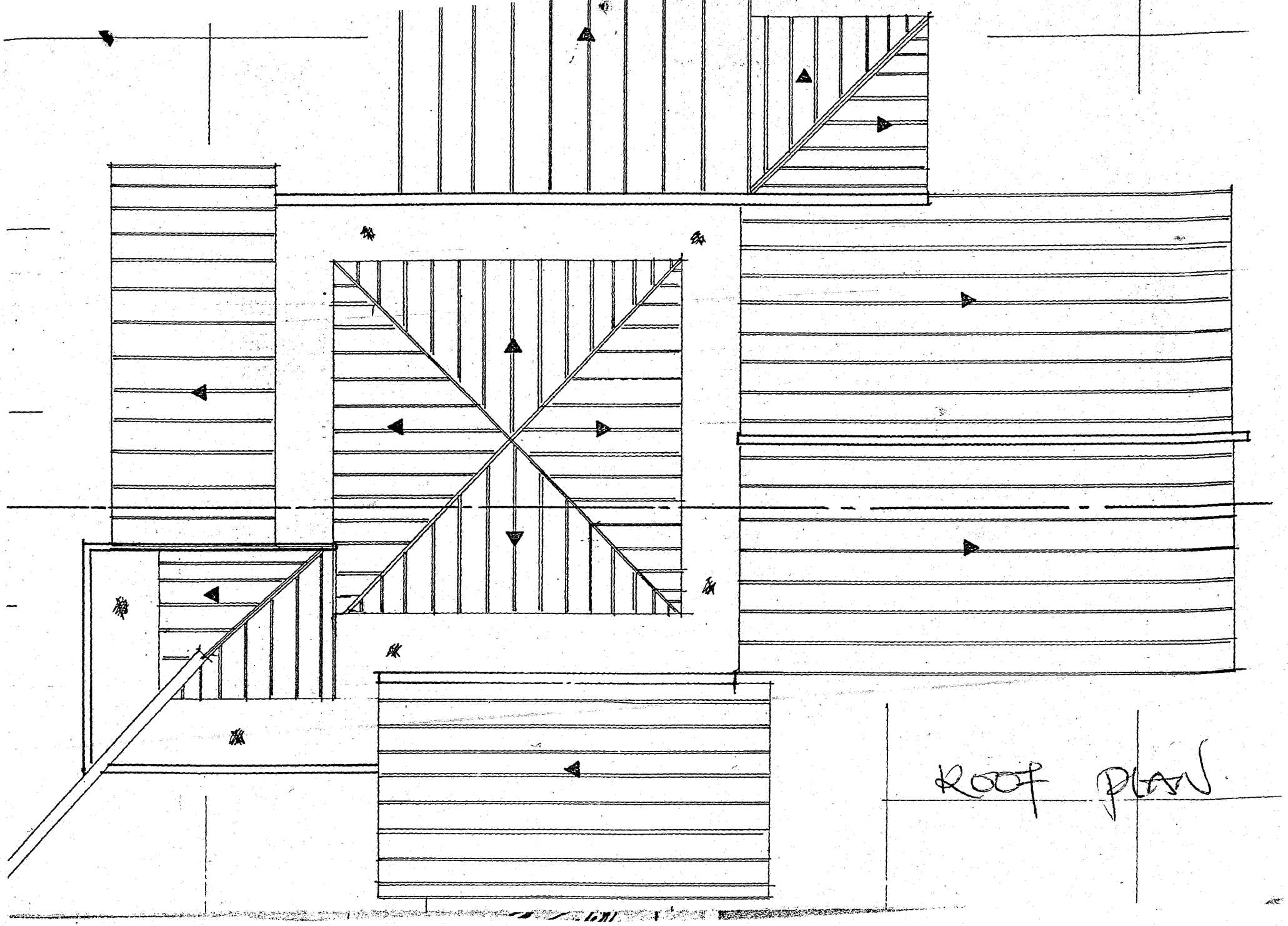


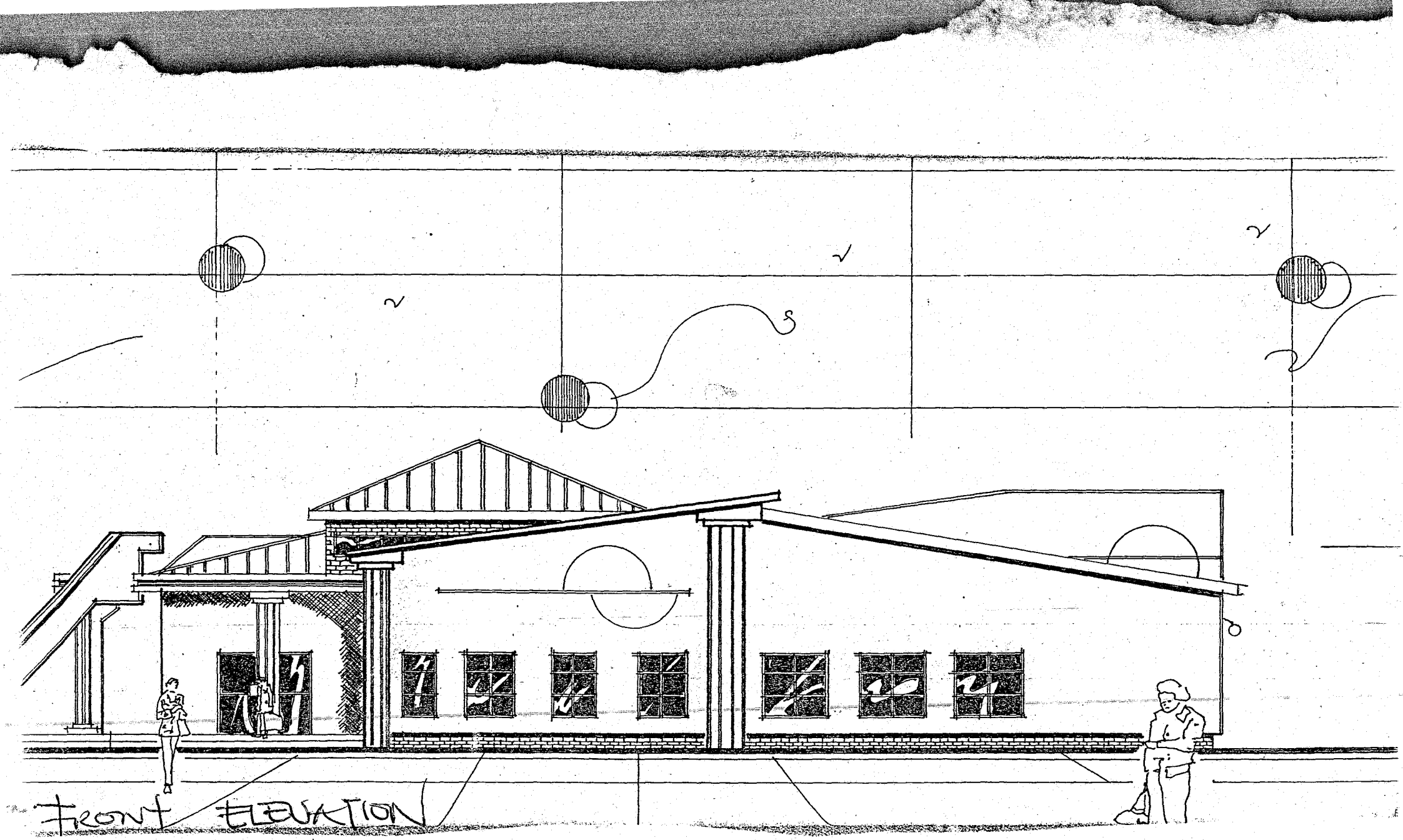
SCALE 1:20.

DETAIL AT B

Cottage Hospital

Doctor's room
Doctor's room
Waiting Room
Reception
Dispensary
Doctor's room
Doctor's room
Lab
Store
Toilets
Toilets
Emergency
Beds
Toilets


ROOF PLAN


FRONT ELEVATION