DESIGN PROPOSAL FOR WOMEN SKILL EMPOWERMENT CENTRE AJIDO VILLAGE, BADAGRY, LAGOS, NIGERIA. A STUDY OF ERGONOMIC DESIGN OF WORK SPACE

BY

OGUNTOYE BODUNRIN
M.TECH./SET/910/2001/2002

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE, POSTGRADUATE SCHOOL, FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF TECHNOLOGY IN ARCHITECTURE.

OCTOBER 2004

DECLARATION

I, OGUNTOYE BODUNRIN OLUWOLE hereby declare that this thesis titled "Design Proposal for Women Skill Empowerment Centre, Ajido Village Badagry Lagos, Nigeria, With Emphasis on A Study of Ergonomic Design of Workspace, is an original product of my own research work under the supervision of Arc. J. U. Aniya.

Oguntoye Bodunrin
M.Tech/S.E.T./910/2001/2002

CERTIFICATION

This is to certify that this thesis titled "Design Proposal for Women Skill Empowerment Centre Ajido Village Badagry Lagos, Nigeria With Emphasis on a study of Ergonomic Design of Workspace", is an original work undertaken by Oguntoye Bodunrin Oluwole of the Department of Architecture, Postgraduate School, Federal University of Technology, Minna in partial fulfilment of the requirements for the award of M.Tech degree in architecture and is approved for its contribution to knowledge and literary presentation.

Oguntoye Bodunrin (Student)	09/11/05 Date
Arc. J. U. Aniya (Supervisor)	09/11/05 Date
Dr. (Mrs). Zubairu (Head of Department)	11/11/2005 Date
(External Examiner)	Date
Prof. J. A. Abalaka (Dean, Postgraduate School)	Date

DEDICATION

This thesis is totally dedicated to the Lord who has been my source of strength; seeing me to the very end of all things; through thick and thin and above all, making me triumph in Him to His glory and praise.

ACKNOWLEDGEMENTS

I would like to express my gratitude to all those who have in their various ways contributed to this research and made it a total learning experience for me.

Special thanks go to my family, especially Overseer R.O. Oguntoye my father who continuously supported and encouraged me, and also to my darling wife Mrs Seyi Oguntoyé for her unrelenting words of encouragement.

I owe my appreciation also to my supervisor Arc. J. U. Aniya who has contributed immensely to the variety of my experiences in the project.

I sincerely acknowledge the effort of the M.Tech. co-ordinator in person of Arc. R. E. Olagunju who cushioned the time I spent during this period.

I must also commend the effort of my H.O.D. Arc. (Mrs) S. N. Zubairu who has been a true representation of a guide and support in my overall stay at the university.

To all these people I say thank you and God bless.

TABLE OF CONTENTS

ABSTRACT

Due to the important role played by women in the family, society, country and the world at large, educating a woman is an indirect way of educating a nation. With the enormous task before women world over, nothing will be too much to make women function, not just well but efficiently. With the multifarious challenges facing women, the design of a women skill empowerment centre is a necessity, if not a must. This design will take into consideration, the need for an adequate and qualitative meeting point, for both urban and rural women, offer vocational training, with an added advantage of recreating and repackaging the women. The above is achieved by the use of a unique feature of ergonomic design of work space in a building. This ensures that the physical surrounding in which work is done fits the characteristics of the human body, so that work can be done without excessive effort within the range of healthy postures, either standing, sitting or exacting force. The design of a well deserved skill empowerment centre for women will go a long way to evolving an emotionally and psychologically balanced woman, able and ready to fit into her role in the society; serving as a focal point for Nigerian women. It will also create job opportunities in the locality and by extension boost the economy of the area. Like a Chinese adage says "Give a man fish and you have fed him for a day, but teach him to fish and you have fed him for a lifetime". Finally, a women skill empowerment centre will bring about confidence in our women and to

fend for themselves and their immediate family. A woman trained is a nation trained, free, independent and empowered.

CHAPTER ONE

1.0.0 INTRODUCTION

As a result of global political trends and development policies, the status of women and the relevance of their role in the uplifting of the society has become increasingly evident, resulting in diversified measures aimed at projecting the image of womenfolk for positive ends.

In Nigeria, such programmes are run by government at state and federal levels, and by private bodies, but nevertheless an absence of coordination as regards the direction and the efficiency of these programmes is apparent.

As in most developing countries, there is a constant migration of the populace from the hinterland to the metropolitan area in search of easier means of sustenance. This has resulted in abandonment of such emigres' former traditional means of livelihood as practiced in their rural communities, usually for more western oriented paid employment in the industrial, manufacturing, or service sectors of metropolitan society.

Several negative aspects emanate from this. There is the abandonment of more traditional means of livelihood for less satisfying pursuits as well as the resultant loss of our cultural heritage, as the very practitioners feel unable to recreate the motivation or need to engage in such activities in their new urban setting.

For this reason I propose a forum where women will have the opportunity to propagate the traditional knowledge inherent in them to others, in an architecturally pleasant environment which is sensitive to the needs of the family oriented society for which they migrated to and to which they belong. It is also hoped that a sense of unity will emanate from the design as women with different ideas, skills and experiences will come together for their mutual benefit and that of society as in an architecturally pleasant environment.

1.1.0. HISTORICAL BACKGROUND

Woman folk in developing countries are in a,position that is slightly elevated above that of beast of burden. They are involved in fetching and carrying water for cooking, bathing and irrigation purposes, non mechanized farming, construction work, when available and natural duties of home management and rearing a family. Traditionally, third world countries have suppressed their women folk and prevented them from achieving any progress in any field of their choice. This suppression can be either religion instigated, or as a factor of traditional male dominance. This has resulted in the emergence of generations of women who cannot even perceive a life style beyond that which they presently practice. As such, women are not able to contribute their quota to the developmental process of emerging nations of which they constitute such a large (usually above 50%) part of the population. The benefit derivable from the involvement of women in achieving societal goal has being recognized all over the world in symposia and workshops aimed at proffering solutions.

As for back as 1975, the United Nation had developed a programme known as the World Plan of Action (Mexico 1975) to enhance the integration of women in the process of development.

In Nigeria, the women division of the Social Development Department, Federal Ministry of Social Development, Youth and Sports was created in 1976 in response to the United Nations General Assembly call to implement the aforementioned plan.

However, the appreciation of the importance of the development programmes was noticed by a group of academicians at the University of Ibadan in 1975, before the women division was created. The university group considered the category of our women folk who were in greatest need of development programnmes. They were identified as women in the rural areas.

In conjunction with the government of then Western state, through its agencies of the women's Training Centre Bodija, Ibadan, and the women programme, Social Development Division of the Social Development Ministry, the concern of the university group materialized into a pilot project on Rural Development known as the Badeku Project.

The women division works towards: -

(a) The participation of women in national development as an integral part of development planning, programming and implementation.

(b) The effective integration of women in the various sectors of the economic, political and social development amongst other things.

The activities of the women's development division include:-

* Mobilizing women for development (imparting economic skills).
* Developing women pilot projects in the rural areas and urban slums.
* Carrying out family welfare programmes.
* Liaising with international agencies on issues affecting women.

The division liases with the following international organizations and commissions for the development of women:-

* Industrial Development Unit of the Commonwealth Nations (IDUCN).
* United Nations Development Programme (UNDP)
* United Nations Committee for the Elimination of all forms of Discrimination Against Women (CEDAW).
* African Training and Research Centre for Women (ATRCW).

The division's projects include:-

(i) Establishment of Women Development Centres in all the states of the federation.

(ii) Organizing cooperatives for rural women and women in the urban slums.

(iii) Skills development programmes for women.

These examples formed the basis of help programmes for women in Nigeria, an idea which the Better Life Programme has gone a long to promote.

1.2.0 AIM

To create a functional architecture that will motivate woman and be seen as a positive step towards the upliftment of women, and recognition of their role in contribution to society.

1.2.1 OBJECTIVES

1. To create a place which through the observation of activities of participants within, will serve to create the desire in order to learn such activities.
2. To create an environment within which learning and training is a major part, but which is not perceived as such by users of the environment.
3. To provide a pleasant environment for the revival and propagation of age long skills.
4. To make conscious effort at the integration of persons with little formal western oriented education.
5. To serve as a possible tourist attraction, and centre for the propagation of the arts and crafts of the locale.
6. To emphasize the contribution of women to development and to give an indication of their efforts toward financial independence.

1.3.0 RESEARCH METHODOLOGY

Information and data used for this study were obtained from various sources by different means. Focused interviews were held with officials of private and government institutions, as well as student of some institutions concerned. Data was also sourced from published and unpublished works, government policy documents, magazines and periodicals. Visits to sites of relevant establishment were also made and relevant illustrations obtained from there.

However, certain limitations to the scope of this research manifested as regards the information gathering aspects. In some cases, notably with respect to government functionaries, the extensive bureaucracy under which the civil service operates made information collation very difficult. Several representations had to be made to various levels of officers in the civil service hierarchy in order to obtain information, of which only the barest minimum of the relevant information will be disbursed.

1.4.0 SCOPE AND LIMITATION OF STUDY

The women skill empowerment centre can be separated into the following areas:-

* Administration and Gallery.
* Crafts studio/workshops (School of the Nigerian women).
* Social/commercial unit.
* Residential accommodation.
* Conference hall

A. ADMINISTRATION AND GALLERY

In terms of design for the Administration and Gallery, emphasis is on the importance of the building as statement for the centre, inasmuch as it is the first building a visitor sees on approaching the centre. It shall comprise of the following:-

* The Director's office
* Assistant Director's office
* P.R.O's office
* Information / Enquiry unit
* Accounts office
* Records / store
* General staff office
* Board room
* Conveniences
* Library
* Reception lounge
* Gallery
* Parking slots

B. SCHOOL OF THE NIGERIAN WOMEN

This school aims at impacting the Nigerian woman (i.e. participant/trainee) the appropriate values and skills to help her become empowered and empowered in the society. It shall have a school and vocational centre which shall consist of:-

* Schools supervisor's office
* Vocational supervisor's office

* Staff offices
* Lecture rooms
* Secretary's office
* Data room
* Studios / workshops
* Stores
* Conveniences
* Parking slots.

C. SOCIAL / COMMERCIAL UNIT

This shall cater for the general entertainment of the centre's participants, staffs and visitors. It shall consist of:-

* Cafe and snack shop
* Rental shops
* Seat out and suya spot.

1.5.0 IMPORTANCE OF STUDY

The best option to tackle any problem is to deal with it from the roots and since every person's first teacher and major influence is the woman (mother), it follows that to adequately have a balanced society, the woman should first of all be schooled with proper norms and values so that what ever alternative is chosen by the feminine gender, she can overall be empowered and empower, that is if she chooses a family life or be better able to relate with other members of the society if she chooses to have a public life.

The centre will aim at improving the lot of the women (both rural and urban) by making her aware of the changes taking place around her and her potentials and

options to match to these changes, both physically and psychologically for the general upliftment of self and society as a whole.

1.6.0 DEFINITION OF TERMS

* ERGONOMICS: The study of the conditions in which people work most effectively. (Collins English Gem Dictionary)
* SKILL: Special ability to execute a particular activity, especially as gained by leaning and practice. (Collins English Gem Dictionary)
* EMPOWERMENT: To enable; give (someone) the power or legal right to do something.
* GENDER: The division of human being into male and female; sex gender differentiation within species. (Collins English Gem Dictionary)
* DEVELOPMENT: Has been defined as a deliberate and continuos process of transformation, and accelerated socio-politcal change in a desired direction. It is a process that involves the improvement of the social, economic and cultural condition of the people. (H.Chike Mba).

CHAPTER TWO

2.0.0 LITERATURE REVIEW

2.1.0 INTRODUCTION

Women and children constitute the vast majority of human population, both globally and within nations (Etannibi, 2000). However they are victims of socioeconomic and political neglect, exploitation and oppression across the world. Men, though a minority, control and appropriate the "Lion-share" of the world's social, political and economic resources. Although women's contributions are very significant to the economic development of their respective countries, they are often excluded from the control and appropriation of highly valued economic resources. Ityavyer, D. A. (1992). The exclusion of women from political and socio economic resources is sustained by cultural, legal and religious prejudices and justifications. Isabella Okagbue (1996).

All over the world, women and children suffer more than men, from social plagues such as illiteracy, poverty, high morbidity, malnutrition and starvation, political and domestic violence. Very often, these plagues are the results of decisions taken by men to the exclusion of women and children. But for the vitality and determination of women to survive and protect the children, women would have long become endangered human species Etannibi (2000).

2.1.1 OBJECTIVES OF THE REVIEW

(i) To gather and analyse data on the legal, economic and social situation of women in Nigeria.

(ii) To discuss the labour force participation of women in Nigeria, and the attendant constraints on women in the country.

(iii) To highlight the roles played by government and international organizations to advance the rights and status of women in the country.

(iv) Finally, the review is to propose measures for the implementation and advancement of women's right and empowerment policies and programmes in Nigeria.

2.2.0 WOMEN AND DEVELOPMENT

No society can develop without effective mobilization and empowerment of women in statistical terms, women constitute about one-half of the world's population. Traditionally, women bare multiple burdens as homemakers, child-bearers and producers.

These are essential functions for which women are hardly rewarded. Exclusion of women from vital resources and opportunities in society undermines national development. There is hardly any country that has recorded economic and social development without effective participation of women in its social, political and economic institutions and processes. Etannibi (2000).

2.2.1 WOMEN AND NATIONAL DEVELOPMENT IN NIGERIA

Women in Nigeria play significant role in the country's development. However as in very many countries, their contributions are inadequately recognized and rewarded; their contribution to the overall development of the country is thereby undermined, and national development is also impeded.

According to population census conducted in 1991, Nigeria had a population of 88,514,501 out of which 43,969,970 (49.68%) were women. Further breakdown of the statistics, for the projected population figure for 1995 shows that women out-numbered men in the 15-44 years age group. The significance of this is obvious, which is that there are more women than men in the most productive years of human beings. This should therefore, impact on public policy to empower women by protecting and promoting their rights. However in Nigeria, women's productive capacity has not been adequately realised and developed due to political, economic, socio-cultural and religious constraints. (Itoro, E. A. 2001)

2.3.0 LABOUR FORCE PARTICIPATION

The labour force is constituted by persons in the 15-59 years age group. Within this group, however, due to problems associated with statistical collation in Nigeria and non-recognition of full-time housewife and house keeping activities, recorded female labour participation is

generally low. There are generally two indices of labour force participation used in the country.

The first, calculates participation rate in terms of labour force as a percentage of total population. Using this approach, female labour force participation was estimated in a 1995/96 survey conducted by the Federal office of statistics, as 38.2% for male and 24.5% for females.

The second approach calculates participation rate in terms of labour force as a percentage of persons in the economically active years (15-55 years). The labour participation rates obtained in the 1995/96 from this approach were 80.2% for males and 45.1% for females. There are wide variations in the participation rates across the country. The lowest rates where obtained in the Northern parts of the country where literacy rate is lower and Islamic culture and practice of purdah, are more prevalent. The pattern of female labour participation indicates their contribution to national development as well as their constraints in that regards. The discussion below provides information on women representation in employment, occupation and industries in the country. A clear pattern that emerge is that; nearly one-half of women (47.6%) were employed in the agriculture and another 37.8% were engaged in sales compared to 63.0% and 12% respectively for males. The pattern can further be analysed with respect to the professions. For example, women constitute only 17.5% (3,258) of medical practitioners in the country in 1993, the remaining 82.5% (15,361)

being men. Similarly women represented 15.6% (1,318) of teaching staff in Nigerian Universities in 1992/93 session. The gap was wider at the professional cadre where there were only 80 females against 1,315 males during the same year. Tables 1 and 2, show that female participation is less than male participation n the labour force. Also women participation tends to be in occupations, which do not yield substantial income, for example, agriculture, sales and clerical.

In 1993, the Federal Government employed 47,490 females compared to 149,712 males. High rates of female participation were recorded in agriculture and the service sector, including the informal sector dominated by petty-trading (See table 2). The federal office of statistics estimated that 31.5% of agriculture workers were women.

LABOUR FORCE PARTICIPATION (AGE 15-59 YEARS) BY SEX AND STATE. (1994)

STATE	MALE	FEMALE
Anambra	74.6	68.0
Enugu	78.8	67.8
Bauchi	90.4	9.6
Delta	65.5	52.9
Edo	66.7	56.4
Benue	81.4	82.1
Borno	94.8	62.7
Yobe	92.8	12.6
Akwa Ibom	77.0	74.2
Cross River	68.6	68.5
Adamawa	81.0	34.5
Taraba	84.2	60.1
Abia	71.9	67.9
Kaduna	68.0	69.9
Katsina	80.7	10.6
Kano	89.0	3.6
Jigawa	85.6	6.8
Kwara	94.3	5.2
Kogi	78.5	72.4
Lagos	72.1	65.0
Niger	76.4	69.2
Ogun	89.8	10.9
Ondo	81.0	83.8
Osun	68.7	74.9
Oyo	66.9	76.7
Plateau	74.9	75.5
Rivers	82.9	57.2
Kebbi	63.6	64.4
Sokoto	93.5	6.1
Abuja	86.8	2.6
Niger	80.2	30.6

Source: Federal Office of Statistics Socio-Economic Profile of Nigeria: 1996

TABLE 2
EMPLOYED FEMALES AS PERCENTAGE OF EMPLOYED MALES IN KEY OCCUPATIONS (1993/94)

STATE	PROFESSIONAL	CLERICAL	SALES	SERVICES	AGRICULTURE	PRODUCTION
Abia	75.09	44.17	102.83	79.81	168.55	22.66
Akwa	52.66	34.95	236.43	71.30	110.13	18.04
Ibom	98.33	65.06	111.87	178.03	146.47	40.43
Anambra	60.23	22.62	97.05	14.48	132.34	42.54
Benue	53.08	45.66	129.43	25.05	142.43	27.33
Cross	65.40	48.15	121.79	27.69	122.70	31.58
River	102.06	49.94	177.08	86.30	203.87	37.94
Enugu	41.11	24.41	222.92	43.25	150.06	37.55
Imo	62.54	25.23	246.97	49.12	87.85	17.81
Rivers	64.20	32.86	278.66	45.58	69.67	26.72
Delta	53.48	32.91	247.51	53.71	34.41	22.04
Edo	67.58	32.66	647.65	68.41	30.82	30.28
Lagos	81.66	42.60	460.49	117.29	97.73	46.38
Ogun	74.21	34.05	838.69	151.41	49.14	44.93
Ondo	64.64	45.16	452.49	132.47	47.60	23.06
Oyo	43.03	36.97	42.83	17.14	49.53	5.36
Adamawa	22.07	10.48	189.71	12.46	4.83	13.80
Bauchi	28.07	20.55	21.91	19.63	91.31	4.59
Borno	6.00	4.13	189.92	67.19	3.02	35.22
Jigawa	26.03	15.97	36.67	16.38	7.39	4.93
Kaduna	6.65	3.48	43.92	10.52	1.49	6.30
Kano	18.35	4.78	56.68	17.90	2.30	8.97
Katsina	9.67	2.77	39.36	19.71	5.89	14.32
Kebbi	64.47	34.22	765.24	57.71	63.16	181.59
Kogi	53.33	30.22	755.77	72.35	20.36	20.86
Kwara	22.58	13.88	71.19	13.55	5.57	5.31
Niger	43.46	28.85	63.12	21.47	86.38	10.29
Plateau	14.87	11.15	26.59	67.80	1.69	5.31
Sokoto	27.35	31.32	66.73	13.92	58.39	299.99
Taraba	11.69	15.38	23.45	2.63	13.68	2.48
Yobe	26.18	32.36	172.82	20.01	15.48	5.57
Abuja	53.09	29.91	193.89	42.61	49.72	29.98
Nigeria						

Source: Federal Office of Statistics Socio-Economic Profile of Nigeria: 1996

The Federal Ministry of Women Affairs and Youth Development in its country report on the implementation of the Beijing Platform of Action (1999:7) reported that:

> "Women are responsible for the reproduction of the labour force and the production of over 70% of the nation's food supply, but they have access to less than 20% of the resources available in the agriculture sector, e.g. land, inputs (fertilizers, chemicals, etc) and credit. Women still constitute less than 18% of the formal sector workers and these are mainly constituted in the lower cadres, such as clerical and secretarial staff, paramedical staff, factory floor workers, etc. There are however, few women who have made it to the top in the public and private sector. Women's numerical strength notwithstanding, they lag for behind men in most indicators of socioeconomic development. They face a variety of constraints, many of which are gender specific.....
>
> They lack access to resources, services and lack access to agricultural extension, productive land, training, institutionalized credit, inputs, technology and support services. They are over burdened under – paid and unappreciated."

The country report also estimated that 70% of the nation's GDP is attributed to the informal sector, 70% of which is controlled by women. Notwithstanding these contributions and participation of women, poverty is

more wide spread and chronic among women. A survey conducted by the Federal office of statistics in 1996/97 shows a household income of "N5, 572.00 for the male and N4, 215.00 for female headed households". The income inequality may be partly attributed to gender disparity in representation in occupations and professions. Women, for example, occupy only 3% of administrator and managerial positions in the country (The Federal Ministry of Women Affairs and Youth Development Country Report 1999:72). In essence, women are under-represented at the decision making levels of the society, and this hinders the release of their potentials for self and national development.

The disempowerment, under-remuneration and under-employment of women represent a violation of their human rights.

2.4.0 WOMEN'S DEVELOPMENT PROGRAMMES

The past one a half decade have witnessed extensive activities general towards the promotion of women's right, autonomy and empowerment. Different national and international agencies, governmental and non-governmental organizations have made significant contributions towards the promotion of women's socioeconomic status and the elimination of discrimination against women in Nigeria.

2.4.1 PROGRAMMES AND ACTIVITIES

The Nigerian government signed and ratified the convention on the Elimination of Discrimination against Women (CEDAW) on the 13th of

June, 1985. It has since submitted the initial, second and third reports to the committee on the Elimination of Discrimination against Women (CEDAW) in 1986/87. In order to give effect to the convention (CEDAW) and to the Beijing platform for Action (BPFA); the Nigerian government has established institutions and committees, inaugurated panels and taskforces, and introduced programmes and activities.

These have been done, in many cases with the support of or collaboration with international agencies, particularly UNICEF, UNIFEM, UNESCO , and ILO. The support and cooperation led, for instance, to the following activities:

(a) ILO working with other United Nations Organization agencies and non governmental organizations in the country embarked on a one-year campaign on violence against women in 1998.

(b) Federal Ministry of Women Affairs in collaboration with UNICEF for a National Survey on Harmful Traditional Practices Against Women and Girls in Nigeria (1999).

(c) Federal Ministry of Women Affairs and Social Development (F.M.W.A.S.D) in collaboration with UNDP prepared a medium term Action Plan on the implementation of Beijing Platform Action (1997).

(d) Federal Ministry of Women Affairs in collaboration with UNICEF organised training of State Commissioners of Women Affairs and Social Development (1998).

(e) Support and assistance were received from UNESCO and UNICEF to advance women and girls education. The UNESCO supported training of rural women. UNICEF provided support to establish and equip women education centres to train women in basic literacy, numeracy and vocational skills. These and other cases of inter-agency cooperation have led to the institutionalization of women programmes in economic, education and health sectors.

The Federal, States and Local Governments have also intensified the tempo of activities and programmes aimed at raising public awareness on issues affecting women and children. 'All the three levels of government established either Ministry or Department of Women Affairs to promote and implement relevant programmes. In 1989, the Federal government established the National Commission for Women, which was subsequently upgraded to a full-fledged ministry with a female minister. The mandates of the ministry include the following:

(i) To undertake and coordinate activities relating to the advancement and active participation of Nigerian Women in all aspects of National life;

(ii) To develop strategies for the elimination of all forms of discrimination against women, and for the implementation of conventions and treaties on women and development;

(iii) To promote the welfare and rights of the Nigerian children and youths;

(iv) To liaise with international agencies for the advancement of welfare, development and rights of women, children and youths.

In pursuance of the good of the advancement of the welfare of women, the federal government has also established the National Centre for Women Development with the task of promoting women's rights and empowerment through research, training and advocacy. The federal government has also inaugurated several, committees to address different aspects of women and children concerns.

2.5.0 THE SOCIAL DEVELOPMENT POLICY FOR NIGERIA (1989)

The policy identified the need to bridge "The gap between de Jure and de facto situation of the Nigerian women".

The objectives of the policy concerning women and Development are:

(i) Eradication of illiteracy.

(ii) Promotion of functional education.

(iii) Encouragement of Political and Civic Education

(iv) Provision of recreation and physical welfare needs.

(v) Elimination of those aspects of cultural beliefs and practices which due to ignorance or misconception dehumanize woman and militate against their full development.

(vi) Promotion of the organization of women for more effective participation in economic, political and social life of the nation.

(vii) Guaranteeing fringe benefits and employment opportunities

(viii) Promotion of the rights and interests of widows

(ix) Discouragement of those types of trade that debase womanhood.

(x) Ensuring that women who marry outside their states of origin have equal benefits as indigenes of their husband's state.

(xi) Ensuring that both public and private establishment employing a hundred or more female workers of child bearing age provide day-care centres for children.

2.6.0 TRENDS IN WOMEN'S DEVELOPMENT IN NIGERIA

National Better Life Programme for Rural Women

In recognition of the need to elevate the large percentage of our population that resides in non-cosmopolitan areas, commonly referred to as rural areas, a large percentage of which are womenfolk, while also acknowledging the fact that the role of these women in the society is not adequately recognized, the "Better Life For Rural Women" programme was launched in September 1987.

A 1975 release of the Food and Agricultural Organisation (FAO) of the United Nations (UN) stated that the third world rural women does 70% of all the work in food production, 50% in animal husbandry, 100% in food processing and 100% mainly of all domestic chores.

Research by the United Nations Development Fund for Women (UNIDFW) has collaborated the release. According to UNIDFW, the African woman spends eight hours a day transporting fuel, food and goods to

market places and the farm, and she sustains one-third of the households. She also is responsible for 70% of micro-enterprises-(petty trade, handicrafts), and also produces the majority (two-thirds) of the population of illiterates in the world.

The burden of the rural woman and the disadvantages she suffers in the male dominated society of today, according to the press secretary to Mrs Mariam Babangida, was the basis of First lady's concern for improved standards of living in the rural area.

Mrs Mariam Babangida concern manifested itself in the establishment of Better life Committees in all states and the Federal Capital Territory Abuja. Wives of State Governors were the chairpersons in the states and each state had an implementation committee which is called the Joint Action Committee. The programme of the committees is geared towards the provision of material and moral support for the rural women to produce goods such as soap, processed farm produce and traditional handicrafts.

Different degree of success and accomplishment have been recorded in the various states.

In Ondo State, a gari processing machine has increased gari production by 20 bags a week, reports the Omuo-Ekiti Farmers Co-operative. Women in Imo State have been encouraged by free supplies of Cassava seedlings and castings to encourage food crop farms of between five and twenty hectares. In instances where societies are loaned funds to

purchase machines to help process or improve yield, the beneficiaries see no problem in loan payment.

Greater recognition of age-old practices is another benefit of the Better Life Scheme. Akwete cloth woven by the Akwete Cooperative Weaving Society which has been in existence since 1960 has received more patronage and now has a building to house the society, courtesy of the Better Life Programme. The market for Akwete cloth has expanded beyond the state and even the Federal boundaries as result of the programme.

A far reaching effect of the Better Life Programme is the education of the women to increase the awareness of their right and privileges. Health education and family planning programmes are also accepted by women under the Better Life Scheme. The committee is also taking steps to alleviate the plight which tradition forces on windows to go through, in some parts of the country. In Imo State in particular as well as in River State, rehabilitation projects for windows were looked into. Some are given scholarship aimed at skills-acquisition in trades such as sewing, typing and hairdressing, at the Port Harcourt Model Education Centre for example.

In Bauchi State, where many women are confined by religion in purdan, mobilization was effected by calling for gathering at the palace of the local ruler, and being addressed by a female co-ordinator. The programmes are funded by the state government.

2. THE ONDO STATE BETTER LIFE PROGRAMME

The Ondo State Better Life Scheme is taken as an example of the extent to which the programme has contributed to the improvement in the quality of life of the target group of women.

The state Better Life Committee aimed at encouraging women to cultivate healthy banking habits, participating in agricultural and industrial expansion, forming viable co-operative societies, and promoting their commercial and economic activities.

Realising that the Better Life Programme is multifaceted, the committee initiated a resource group which comprised women leaders, professional, market and business women, drawn from all the Local Government Areas (LGA) into sub-committees of childcare/child abuse, marketing, Education, Health, Agricultural projects and Arts and Crafts concerns.

On a further tour of the LGA's in March, 1988 from the 9th-24th of the month, the progress made by the Better Life Scheme was evident as small scale industries such as soap manufacturing, cloth weaving, fish smoking, basket making, rice milling, pottery to name but a few, were seen in place by the committee.

The formal launching ceremony of the Ondo State Better Life Programme on 27th April 1998, had as a focus several workshops organised for education of the women. These seminars and workshops are:

(a) Management of Loan Schemes

(b) Modernisation of Nigerian Traditional Crafts for income generating activities.

(c) Workshop for cooperative societies and Family Planning Services

(d) Seminar on utilization of bank loans

(e) Seminar on mobilization of women for immunization, which incidentally resulted in an increase in the percentage coverage in immunization from 20.3% in 1988 to 90% in 1989.

(f) Seminar on the role of women in population control.

An important part of the Better Life Programme is the establishment of Better Life women special centres. Six such centres have been commissioned at Igede, Okemesi, Ondo and two at Owo. The centres are meant to be congregational points for women, where learning and relaxation can occur in the same ideal environment. Each centre will have classrooms, dining facilities and workshops.

2.6.1 CRITIQUE OF WOMEN DEVELOPMENT PROGRAMMES

From the programmes discussed above, various types of self-help and women empowerment projects emerged. Some of the projects embarked upon to better the status quo of women helped to realise the importance of what they were involved in and its relevance to modern society.

Also the projects showed how women who did not have the benefit of western education could attain financial independence. The realisation of the

market ability of the hand-manufactured articles created by these women has led to a strive for excellence and the transformation of some of their articles to various uses which differ from those traditionally adduced to them.

Some examples of these are those produced by the women of Ondo State through the help and encouragement of the State Better Life Programme. The mats are now being made into brief cases, bags, slippers, table mats and other items, all of which differ from the traditional sleeping mats.

The psychological effect on the practitioners which is the most enduring and desirable has encouraged women who hitherto were unemployable, financially dependent and relegated to the background, to strive for excellence and improve their status quo and adapt to changing markets and market forces.

It is for this reason that this study has focused on the handicrafts as the main stay on the proposed women skill empowerment centre. It is hoped that the centre will contribute in no small measure to the development of a very important but neglected group in our society, and re-orientate their values. Considerations for handicrafts and vocations to be taught and practiced border on the following:

- Vocations which have a high market appeal
- Vocations which would utilize any locally available raw materials.

- Vocations where a high and predictable level of production quality can be maintained.
- Vocations which are adaptable to current fashion or design trends.
- Vocations which are economically viable

2.7.0 RECOMMENDATIONS FOR EFFECTIVE IMPLEMENTATION OF POLICIES AND PROGRAMMES FOR WOMEN DEVELOPMENT

Effective implementation of policies and programmes for women's development in Nigeria, require strong collaboration between the government and non-governmental organizations. For great impact of such policies and programmes, there will be need for:

(i) Adequate budgetary allocation by government and efficient management of resources.

(ii) Increased financial, technical and training assistance by foreign donors

(iii) Sustained enlightenment and mobilization campaign to change negative cultural and religious attitudes towards the rights and development of women.

(iv) The integration and participation of the people at the community level in programme formulation and implementation.

(v) The domestication of conventions and charters by the government in order to make them justifiable or enforceable in the country.

(vi) Long-term research, including ethnographic studies in order to fully understand the nature and determinants of socio-cultural, economic and political experiences of women and girls.

(vii) Concern for local or grassroots' participation and sustainability in the formulation and implementation of programmes.

CHAPTER THREE

3.0.0 RESEARCH AREA: ERGONOMIC DESIGN OF WORKSPACE

3.1.0 INTRODUCTION

Ultimately, everything that one designs impacts on the human in one way or another. Someone will have to fabricate the product, package it, distribute it, unpack it and prepare it for use, operate or use it, service and maintain it, and finally dispose of it. For this reason, designers should be constantly alert to the ergonomic implications of their proposed design for the various users who may come in contact with it.

Advances in technology have made it possible to make tremendous improvements in our daily living, working, and recreational conditions, providing us with more efficient and comfortable places in which to work and live, improvements in the products equipment, and tools we use so that less energy is required, more efficient output, minimum amount of time used and safety guaranteed.

It has often been noted that poorly designed product-user interfaces result from lack of knowledge on the precepts of ergonomics by the designer. This does not mean that designer s are completely negative toward ergonomics, but rather that they evaluate and resolve ergonomic questions on the basis of personal feelings or experience.

Unfortunately, this is seldom sufficient, and in some instances it may introduce personal biases that our completely contrary to fact.

The principle that underlines ergonomic design is concerned with the interaction between user – product and space requirement in which they exist. The goals are to ensure that these interactions occur with ease, in safety and without error, to the benefit of the individual and society.

Ergonomics draws upon a wide variety of special knowledge: Psychology, Physiology, human anatomy (i.e. anthropometry), and design statistics as its primary sources. No single human factors/ergonomic specialists know all he or she needs to know about the human. It is therefore little wonder that designers cannot be expected to be completely informed on all human factors areas.

The intent of ergonomic design on the whole is to focus on and resolve human-product interface problems as it relates to a space requirement and solutions whenever or whatever they are.

3.1.1 DEFINITION OF ERGONOMICS

Ergonomics is a term used by Europeans and others, which is Synonymous with "Human factors" as used in the United States. According to the Reader's digest Great Encyclopaedia Dictionary Vol. 1; Ergonomics is the scientific study of the efficiency of workers in their working environment.

Ergonomics or Human factors engineering is the practice of designing products/spaces, so that the user can perform required use, operation, service

and supportive tasks with a minimum of stress and a maximum of efficiency within a workspace.

To accomplish this, the designer must understand and acknowledge the needs, characteristics, capabilities and limitations of the intended user and design "from the human-out". In order words, the designer should make the design "fit the user", as opposed to make the user "fit the design".

3.2.0 THE AIM OF ERGONOMICS DESIGN

The ergonomist as a technologist is concerned with facilitating whatsoever a person wishes to do and to ensure that it is done efficiently. Efficiency is interpreted widely to mean not only that whatever is done should be effective in the short term but also that in the long term there shall be no detrimental effects on health and that the risk of accident is minimal. Risk refers not just to the operator but also to others who might be affected by what the users does. Thus the criterion of success might be as simple as a measure of productivity but usually in present society, the objective is to minimise the possibility of human error. Also the role of the ergonomist is to ensure that this is done with a minimal use of energy and materials and without waste resulting from mistakes. Mistakes can lead to damage of products, distortion of information and important of all, effects on the safety and health of people. The criterion of success in Ergonomics is that these are minimized by minimizing human errors.

The ergonomist as a scientist is concerned with the development of knowledge and techniques that will further the technology. The combined use of anatomical, physiological and psychological expertise in advancing knowledge is characteristics of Ergonomics and also is the use of the systems approach, which facilitates the consideration of many variables simultaneously in the context of a particular objective.

3.3.0 ERGONOMICS OF A TECHNOLOGY

In ergonomics, as in other applied disciplines, real problems cannot be solved by remaining within the boundaries of a particular science. Invariably, an inter-disciplinary aspect of design work must be highlighted to have an adequate overview. Thus Ergonomics design can be reviewed in terms of various aspects of the systems design of work: The systems concept, Architectural systems, work space design, basic tasks and, Human-Architectural interfaces.

3.3.1 SYSTEMS CONCEPT – GENERAL SYSTEMS PRECEPTS:

A "System" as used in this context refers to larger, more complex, mission – oriented groupings of elements into an integrated, functional whole. The system typically includes a physical facility, equipment, furnishings, and fixtures and involves a variety of people who use, operate, or maintain it.

3.3.2 ERGONOMICS IN SYSTEM DEVELOPMENT

Ergonomics should be considered at the concept formation stage and at all the succeeding development stages. However, at the systems concept level, the principal considerations should include the following:

(i) Deciding what roles humans are to be assigned in system operation i.e. administrative management, operation, maintenance, and general use.

(ii) Deciding where, when and how humans/user will interact with subsystems and components, directly or indirectly.

(iii) Deciding what has to be done to provide humans satisfactory living and working environments to ensure not only this safety but also their efficient performance and comfort.

(iv) Determining what human constraints impact on the system design and eventual system performance and deciding how to ensure that human will not become the weak in the system.

3.3.3 PRINCIPAL OBJECTIVES OF ERGONOMICS IN SYSTEM DEVELOPMENT

The principal objectives should be to design a system that:-

(i) Is "adapted" to the user, as opposed to creating a system in which the user has to do all the adapting.

(ii) Provides the user in the system the where withal to perform in the best manner of which he or she is capable.

(iii) Does not subject the user to extreme physical or mental stress or to possible injury or death; as a result of either some poorly designed component equipment malfunction or unpremeditated user error.

(iv) Provides personal satisfaction for the user in terms of both successful operation and pride of ownership.

3.4.0 ARCHITECTURAL SYSTEMS – GENERAL

This section deals with Ergonomic design considerations that should be addressed during the initial conceptualization of any architectural system. The section begins with general guidelines that are applicable to all systems.

Although for practical reasons, not all the possible architectural systems have been addressed, it is hoped that sufficient related information is included so that readers can extrapolate to some special system they have responsibility for conceptualising.

3.4.1 USER – ORIENTED CONCEPTUAL PLANNING

Start with the user. Recognise his or her characteristics and constraints. Determine the user's needs. Create a place for the user to perform whatever tasks he or she expect to do. The following steps are suggested in conceptualising an architectural system "from the user or human – out":-

STEP 1: Determine and examine the needs of the total user population i.e. do not concentrate only on the primary resident, for example, look at the needs of his or her visitors or clients and the people who will serve the primary resident in the proposed facility.

STEP 2:- Examine and define the various tasks that each of the above users has to perform. Determine what these tasks imply in terms of space, environmental control, supporting furnishings, and utilities.

STEP 3: Explore the interactive as well as the isolative needs of the various users and their furnishings and equipment. Examine alternative arrangements to determine the most convenient organization of people, furnishings, spaces, buildings etc.

STEP 4: Create an enclosure for the most effective alternative defined in step 3 and add appropriate partitioning to provide desired environmental control, privacy, and security.

STEP 5: Select an appropriate site that will accommodate the building or buildings defined in step 4 and locate, position, and arrange the building or buildings with respect to appropriate site and building access.

Now you are ready to examine the concept in terms of aesthetic features, including architectural style, special material effects, and

landscaping. These features are generally cosmetic, and although they are important in terms of making the system pleasant to look at, they can for most part wait until the five steps outlined above have been completed.

3.4.2 USER EFFICIENCY

From an Ergonomic design point of view, efficiency is of prime importance to the eventual effectiveness of any system. The table below provide suggestions regarding user efficiency variables that should be considered carefully during the conceptual phase of any architectural system development.

User Efficiency	
Parameter	**Variables**
Vision	What a person sees clearly establishes the basic input to that person. his or Her use response depends on how well the architectural concept implies what the designer intends the user to do with it .The critical variables include the following:- 1. Visibility: Are critical features in sight, or are they obscured by intervening elements, glare or shadows? 2. Legibility:- Are critical features clear, or are they distorted by lack of contrast, parallax, exaggerated embellishment, or illusory geometric? 3. Conspicuousness: Are features that are important to detecting, recognising, and understanding lost in the background? 4. Recognisability:- Are features natural, familiar, and/or similar to the observers' expectations, or are they distorted or purposely made to look like what they are not?
Hearing	What people hear not only affects their ability to communicate but may also affect their general capacity to

	perform other tasks. The critical variables include the following: 1. Audibility:- If certain sounds must be heard, the acoustic environment must be designed to carry the sounds and not block them. 2. Intelligibility: The acoustic environment must be designed so that it will not distort the sounds intended for the listener. 3. Signal-to-Noise Ratio:- The combined communications and acoustic system must be designed to maximize the problem that extraneous noises will not obscure the desired sound signal. 4. Noise annoyance: Adequate noise attenuation must be provided to minimize the possible deleterious effects that as annoying noise can have on individual task performance.
Stability	How well a person performs ambulation or biomechanical or other manipulative tasks depends on the stability-aiding elements of the architectural system and/or the possible impediments designed into the system. In addition, there are critical visual interactions that may add to the instability of

	the user. Among the typical features to examine are the slope of floors, walkways, stair treads, handrails, and door thresholds, structural vibration also impacts on user stability.
Mobility	How well people perform dynamic tasks which they must move their bodies and limbs depends both on the clearances provided around their tasks envelope and on the supporting area provided to maintain stability.
Convenience	How well people perform various tasks depend to a great extent on how conveniently they can move from one place to another. This requires careful consideration of functional relationships, the sequence of events, time constraints, and emergency demands in order to create a logical and energy saving arrangement of spaces and activities within spaces. Lack of convenience not only reduces immediate user effectiveness but also may add to fatigue and possible operator failure.

Table:----

3.4.3 PSYCHOLOGICAL CONSIDERATIONS

The architect is usually concerned about whether the user will be attracted by the design of the community, home, building or other structural edifice – not only when it is first observed, but also as it occupied over a longer period of time. The illustration shown below may be useful in considering the more important ingredients that play a part in determining user reaction.

The accompanying table expands on these ingredients, listing common responses given by typical research test subjects who were asked to verbalise their reactions to architectural environmental features.

1. PSYCHOLOGICAL INGREDIENTS IN DETERMINING USER REACTION

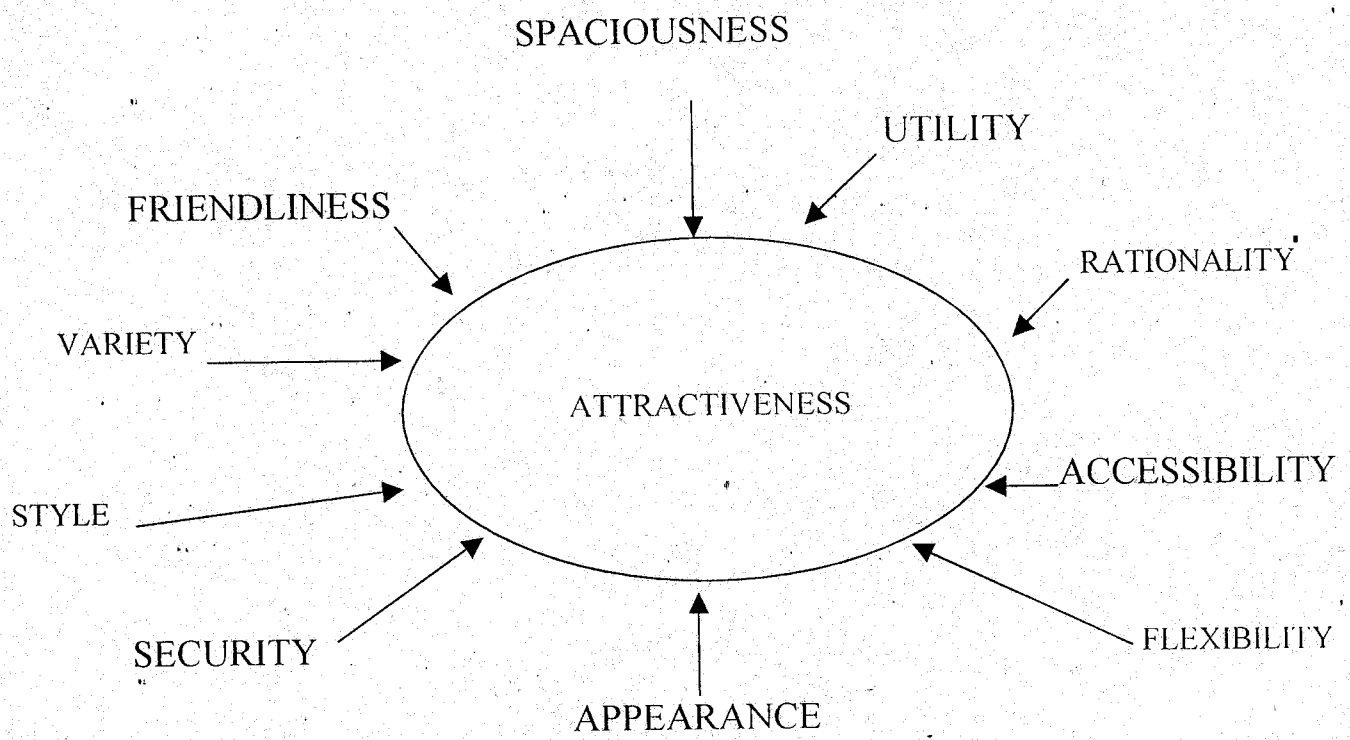


Illustration: II

In general, one should seek a more or less middle ground in trying to create a balanced combination of the factors below. However, the adjustment between descriptions will be different from various types of architectural systems. For example, the objectives for a satisfactory home environment are not necessarily the same as those for a satisfactory office or factory environment. By the same token, similar adjustment is required for subsystems with the home, office or factory; e.g., the Psychological needs in the bedroom are different from those in the bathroom, and the needs of a production department are different from those of the company or library.

2. SEMANTIC DESCRIPTIONS FOR ACCESSING OBSERVABLE PHYSICAL FEATURES IN ARCHITECTURE

Factor Categories	Descriptor Scaling Examples	
* Spaciousness	Generous	Cramped
	Ample	Limited
	Empty	Crowded
* Friendliness	Warm	Cold
	Intimate	Detached
	Relaxed	Stiff
* Variety	Stimulating	Boring
	Dynamic	Static
	Diverse	Monotonous
* Utility	Purposeful	Unnecessary
	Efficient	Confusing
	Practical	Frivolous
* Rationality	Organised	Unnecessary
	Logical	Confusing
	Simple	Complex
* Flexibility	Adjustable	Constrained
	Mobile	Fixed
	Expendable	Confined

* accessibility	Open	Closed
	Direct	Indirect
	Formal	Casual
* Security	Familiar	Unknown
	Safe	Uncertain
	Protected	Exposed
* Appearance	Graceful	Awkward
	Contemporary	Obsolete
	Meaningful	Obscure

Table:----------

3.4.4 ARCHITECTURAL SAFETY

An objective during conceptual planning should be to create an environment in which the user can be as safe as possible. Although this is a tall order, many of the accidents that frequently occur in homes, offices, schools, factories, and elsewhere are due as much to the facility design as they are to the user errors.

The following typical safety considerations are applicable to all architectural systems:

1. Use non-flammable, non-toxic materials.
2. Eliminate sharp edges, corners, etc. that could cause injury.
3. Create properly designed stairs, ramps, and walkways.
4. Do not use large ceiling-to-floor glass windows or doors without appropriate barriers to prevent people from walking through them when they are closed.
5. Ground all electrical controls, cover outlets, and otherwise prevent people from receiving electric shocks.
6. Provide adequate illumination so that people can see where they are going and avoid tripping over a walkway obstruction or step.
7. Use non-skid materials on floors, walkways, and stairs, especially if there is a possibility of their becoming wet.

8. Provide appropriate handrails around balconies and alongside stairs and use railing designs that children cannot fall through or get their heads caught in.

9. Cover moving parts of machines to prevent people from getting their hands or clothing caught.

10. Provide adequate emergency escape routes that can be used in the event that normal passageways and exits are impassable.

11. Consider the problems of window washing and of house or building repair in terms of typical unsafe practices associated with ladders and scaffolds.

12. Provide appropriate fencing around special facilities from which children should be barred (e.g. swimming pools, high-voltage wires, and heaters).

13. Provide fire sprinkler and alarm systems.

3.4.5 CONSIDERING EASE OF MAINTENANCE DURING THE PLANNING STAGE OF DESIGN

If it is considered at all during the planning stage, facility maintenance traditionally becomes a question of: How can this facility be maintained as we have designed it? In other words, too often the question of ease of maintenance does do not come up when key architectural configuration decisions are being made. In spite of this traditional attitude, all facilities

have to be maintained, and by human beings. The following key maintenance functions should be part of any design concept trade-off analysis:

1. Daily house-keeping: Cleaning floors, walkways, windows, walls, ceiling, etc.
2. Periodic Inspection and Repair: Inspecting and repairing windows, roofs, walls and woodwork, hot water heaters, plumbing, etc.
3. Periodic Refurbishment: Repainting exterior and interior surfaces, replacing roofs, replacing plumbing fixtures., etc.
4. Landscape Maintenance: Watering lawns and shrubs, removing trash, etc.

3.4.6 COMMON ERGONOMICS DESIGN PROBLEMS ASSOCIATED WITH MAINTENANCE RELATED DESIGN.

1. One cannot get to the spot that requires inspection, adjustment, cleaning, removal, replacement, or refurbishment.
2. There is insufficient space to do the job once a person has reached or located the maintenance problem.
3. There is insufficient illumination to see what needs to be seen.
4. There is a lack of appropriate service connections to enable use of the necessary tools at the work site.

5. The device to be repaired or replaced is buried into the structure, requiring major destruction and eventual repair.

6. Main service shut offs (e.g., water, electricity, gas) are variously distributed, hidden, and/or inaccessible, requiring an inordinate amount of time to find them.

7. The composite land-site-structural relationship precludes the normal and safe use of common maintenance aids such as ladders or scaffolds.

3.47. DESIGN FOR THE HANDICAPPED USERS

Special consideration should be given to the needs of the handicapped when it is obvious that they too can be expected to utilize a proposed architectural system. The following description of typical handicaps provides a general idea of how the architectural system will have to be modified so that the handicapped can use it effectively:

1. CONSIDERATION FOR THE BLIND:

Blind or partially sighted individuals get around by depending on sound signals and tactile cues in order to locate, identify, and interpret their physical surroundings. They require the following special features:

(a) Well defined, rectilinear walkways, street corners, and curbs which the blind person can touch with a cane.

(b) Pathway obstructions that go all the way to the floor or ground so that the blind person's cane does not pass beneath the object and thus allow the person to run into the object.

(c) Nothing at head height, such as signs, guy wires that support telephone poles, and trees with low branches.

(d) Sound signals so that the blind person will know when a DON'T WALK signal is on or whether an elevator is going up or down.

(f) Guard rails and/or special tactile identification of pathways to keep the blind person from veering into the street.

2. CONSIDERATIONS FOR THE DEAF:

Whenever an audio signalling device (warning) is used for the general population because of the chance that people may not be looking in the direction of a hazard, an accompanying visual and/or tactile (vibration) signal should be devised for deaf persons to draw their attention to the hazard also.

3. CONSIDERATION FOR THE ORTHOPEDICALLY HANDICAPPED

Architectural mobility for the orthopedically handicapped can be increased by the following:

(a) Adequate clearance; smooth ground and clear surface, especially at thresholds of doorways, curbings, and ramps for change of elevation;

and reachable heights for such items as drinking fountains, telephones, and built-in worktable tops and shelves.

(b) Door handles and cabinets handles that can be pushed rather than grasped or squeezed and turned.

(d) Stairs that are not steep and railing that can be grasped and held firmly in the arthritic hand.

SPECIAL NOTE:

In addition, care should be exercised in terms of how some aids to the handicapped may affect the use of the facility or choice by non handicapped persons. In many cases, however, the aid may help both the handicapped and the non-handicapped person. For example, more manoeuvring room, better handrails better handles, larger, clearer street signs etc.

On the other hand, care must be taken to avoid creating aids for the handicapped that may cause difficulties for non-handicapped users.

3.5.0 GENERAL PRINCIPLES FOR CONCEPTUALIZING WORK SPACE DESIGN

3.5.1 GENERAL WORKER AND OPERATOR POSITIONING CONSIDERATIONS.

1. AVOID AWKWARD POSITIONING

(a) Minimize the necessity for operators to lean i.e. arrange the workspace so that operators can maintain a more or less normal alignment of their bodies, especially when standing.

(b) Operators should not have to use their maximum reach capability, i.e., they should be able to shift their bodies to a better position.

(c) Operators should not have to sit or stand for long periods with their head, torso, or limb position skewed; i.e., they should be able to keep their heads, necks, torsos, and limbs in a symmetrical relationship as much as possible.

(d) Operators should not be forced to work frequently or for long periods with their heads and arms above normal elbow level.

(e) Avoid positioning operators in supine or prone positions.

(f) If the limbs must be extended for long periods, provide some kind of limb support.

(g) Configure the work space so that operators can see what they are doing without having to assume an awkward head or body position to see around their hands or the control device.

2. FORCE APPLICATION

(a) Place manipulable objects or controls in position that are compatible with the best geometric relationship for applying pushing, pulling, or rotating force by operators whenever such forces cannot be minimized.

(b) Provide an appropriately positioned support against which operators can minimize counter force effects, e.g., an armrest, handrest, or backrest.

(c) Arrange force-demanding controls in positions where operators can apply the necessary force without disturbing their normal body position, especially when this might interfere with a primary visual or control activity and/or with necessary body-referencing posture.

3. MINIMIZING FATIGUE-PRODUCING WORKSPACE ARRANGEMENTS

(a) Provide backrest for seated operators

(b) Provide armrests.

(c) Provide hand rests when operators are using a continuously operated controller,

(d) Provide for rests.

3.5.2 KEY FACTORS TO CONSIDER FOR EACH TYPE OF OPERATOR WORKING POSITION

1. STANDING OPERATORS:

(a) A smooth level surface should be provided

(b) There should be sufficient surface area for operators to establish an adequate spread of their feet, to move when necessary, and to brace their feet when required.

(c) A non slip surface should be provided if a platform is subject to movement.

(d) A resilient surface should be provided if operators must stand all day.

(e) Visually observed workspace elements should be arranged so that they can be seen without excessive movement, so that there is no parallax for reading instruments, and so that reading distance and size of display are compatible with readout precision.

(f) Manipulative tasks should be arranged and/or oriented to be compatible with respect to reach convenience, required motion patterns, force application requirements, precision demands, and response speed. Special attention should be given to the implications of eye-hand coordination.

2. SIT-STAND OPERATORS

(a) The eye reference for both the seated and standing operators should be approximately the same.

(b) If both seated and standing operators may have to use the same control device, place this in a position that will minimize interoperator interference.

(c) Provide a footrest for seated operators.

3. SEATED OPERATORS

(a) Provide a seat that ensures optimum working posture for the tasks being performed.

(b) Arrange visual displays and controls so that an operator's hand will not cover critical displays and so that the displays are normal to the expected viewing line of sight.

(c) Position all controls so that, in manipulating them, operators do not appreciably move their nominal eye reference and possibly miss seeing important events occurring outside or on the principal internal display.

4. MISCELLANEOUS CONSIDERATIONS

(a) Organizational standardization versus individual adjustment:

When similar workspaces are to be repeated, a compromise should be sought between the benefits of a standardized workspace (which permits operators to shift from one work space to another without confusion) and the benefits that occur from allowing individual operators to modify their workspace to fit each type of activity more

conveniently (i.e. to rearrange tools, materials, or other aids so that they are more accessible).

(b) Illumination

Do not assume that a generalized type of illumination will satisfy all tasks-seeing requirements; i.e., the type and location of light fixtures should be determined according to the varying needs of the operator. Especially important is the creation of seeing conditions that minimize glare and reflection problems.

(c) Storage

Most all workspaces require the provision of storage space for books, files, tools or writing and drawing requirements. Especially important is the provision of storage space for discarded items and personal articles.

(d) Environmental Considerations:

Be aware of the possibility that a particular individual workspace may reduce the effectiveness of general ambient thermal, ventilation, and noise control systems, thus requiring additional features to ensure that the operator does not become over heated or is not subjected to respiratory contamination or to interfering or annoying noises that may be produced within his or her particular workspace.

(g) Manipulative clearance for large materials:

Often large materials must be manoeuvred into place before they can be worked upon. Provide adequate clearance so that such materials can be manoeuvred into place easily.

3.5.3 BASIC TASK IN RELATION TO WORKSPACE DIMENSIONING

1. **Writing:**

The writing surface should be at approximately elbow level and should be relatively horizontal (maximum (5° slope); greater slopes make it difficult to keep a pen or pencil from rolling off the surface.

2. **Typing:**

The centre of the keyboard should be at about elbow level.

3. **Drawing:**

A drawing board used for precision work should slope approximately 3° to 4°; this provides the best compromise between reaching, viewing, and precise instrument manipulation. For less precise drawing, sketching, or artwork, the drawing surface should be adjustable, so that the artist can match the size of the work with the best position for sketching, painting, etc. A sit-stand arrangement is most desirable for average mechanical drafting work since it allows the worker to reach all areas of a larger drawing easily.

4. **Storing And Retrieving Shelves:**

Design and/or select storage shelving that allows the user to reach and grasp objects to be stored or retrieved easily and without fear of dropping them. Avoid, deep, high shelving since it is easy for small objects to be pushed to the rear of a shelf, where they are neither visible nor manually accessible.

5. **Office Machine Use:**

Either select machines that have properly designed (including special stand) or select or build tables that assure proper positioning of the principal work level of the machine. The work level should be at approximately the user's elbow height.

6. **Tool Operation:**

Various tools require that the work level be carefully chosen especially if there is a requirement for precision and/or the application of controlled force.

3.5.4 NOMINAL GUIDELINE DIMENSIONS

Although the accompanying general dimensional suggestions are recommended to approximate the optimum, one should be careful not to assume that they necessarily apply exactly to a specific problem. Use of a test mock up to verify these is recommended.

3.6.0 CONCLUSION

Ergonomic design covers such as a wide variety of special knowledge that no single ergonomist specialist knows all he or she needs to know about the subject. It is therefore little wonder that designers cannot be expected to be completely informed on all ergonomic design areas. Therefore, numerous attempts have been made to collate as much Ergonomic design information as possible into textbooks, guide books, and other Ergonomic data references so that both the Ergonomist specialist and designers can refer to these during their design efforts.

This research area is yet another compilation on Ergonomic design information designed t be used by the designer as a ready reference guide for workspace planning and conceptualisation.

This paper obviously cannot cover all possible use situations of every possible or probable design. However, it can provide a variety of information that, it is hoped, will be useful in identifying and solving most of the ergonomic design problems for most design programs. It will not, however, substitute for the use of common sense and judgement by the designer. By "Common Sense," we mean careful consideration of all the factors that may impinge on workspace effectiveness in the final fractional sense. But in considering these factors, keep in mind that the ultimate success of a workspace depends on how well the user performs the tasks associated with it.

It is therefore hoped, that this research compilation will provide a basic reference source for a broad sample of designers in the various fields of architectural, furnishing and environmental systems and component design and that it will help them become more aware of the importance of Ergonomic design of workspace and also assist them in solving specific workspace-product-user interface design problems.

CHAPTER FOUR

4.0.0 CASE STUDIES

4.1.0 SOCIAL DEVELOPMENT TRAINING CENTRE IBADAN: CASE STUDY ONE

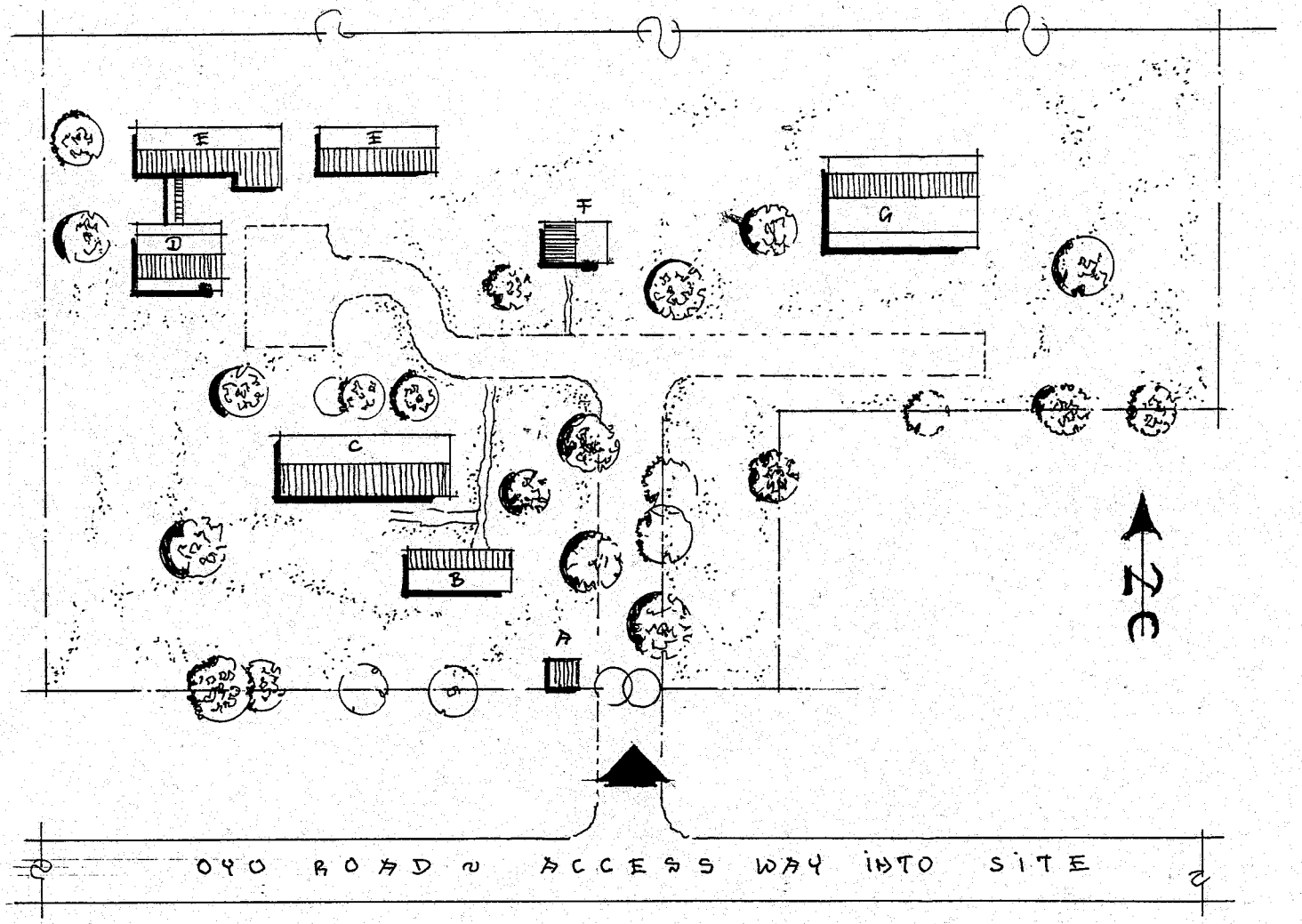
INTRODUCTION/HISTORY

The Social Development Training Centre (S.D.T.C.) is located near the old Ibadan airport. Wire mesh fencing encloses the property which is bounded on the east by an aviation establishment and on the west by a large expose of uncleared land which separates it from the scripture union premises. The Oyo Road, a very busy major through fare, forms the Southern boundary.

The centre was established in 1965 in response to the Government efforts to improve the quality of the family through improvement and training of the woman. It is run by the Woman's Department of the state Ministry of Information and Social Development which is directly responsible for monitoring the centre.

At inception, training programmes were for women in appreciation of their multifaceted role as wife, other, home maker, educationist, financial manager, besides being career women. Today however, entrants are school certificate holders. The training programmes included several courses which can be financially rewarding when learned to the requisite degree of proficiency, is of three month duration. Aspects such as sewing, tie dye

LEGEND	
A	GATE HOUSE
B	ADMIN / LECTURE ROOMS
C	PRACTICAL CLASSROOMS
D	DINING HALL
E	HOSTELS
F	
G	ASSEMBLY HALL



SOCIAL DEVELOPMENT TRAINING CENTRE IBADAN

making, handicrafts, knitting and soap making are taught with the aim of enhancing the women's productive base.

A new programme run by the Committee On Women and Development (COWAD)runs for two years and is intendeds for female secondary school drop-outs with a curriculum of social studies, handicrafts and English Language.

The equipment at the centre was donated by UNICEF which in the past also granted a yearly subvention to meet running costs of the centre. There has been no UNICEF assistance for the past twelve years now, so, a lot of the equipment and classroom facilities have deteriorated. At present, the state government provides the instructional materials and instructors, while the fees paid by the students are used to assist in the day-to-day running costs of the centre e.g. stationery.

FUNCTION/ARCHITECTURE

Principal buildings on the large sloppy site with several well-developed trees on the laterite soil are the administration and classroom block, hostel and dining hall. The structure in all cases is reinforced concrete columns with sandcrete block work, an exception being the dining hall which has a heavy concrete parapet roof that gives a feeling of dominance over the immediate surroundings.

All other buildings have simple monopitch roofs. The hall is at present not in use and is full of disused furniture. The hostel block which is

accessible to the dining hall through a covered walkway is a two-storey building comprising ten rooms with facilities and conveniences on both floors.

The classroom and administration block is a two storey building with large classrooms on the ground floor for sewing and cookery classes. Fitted cabinets in the cookery room together with the necessary equipment, and specially designed table tops to accommodate sewing machines in the sewing room are the only indicators of the functions to which both spaces are put.

MERIT CRITIQUE

(i) The hall space could be used for party reception purposes providing additional revenue source for the centre.

(ii) There are several well developed trees which flank the access road on both sides forming a drive way.

(iii) The hostel block is accessible to the dining hall through a covered walkway

(iv) There are fitted cabinets in the cookery room together with the necessary equipment, and specially designed table tops to accommodate sewing machines in the sewing room which are indicators of the functions to which both spaces are put.

DEMERIT CRITIQUE

(i) Most of the furniture, equipments and even the buildings e.g. dining hall and hostel are in a state of disuse and dilapidation.

(ii) The dining hall has a heavy concrete parapet roof that gives a feeling of dominance over the immediate surroundings; which does not make any architectural sense.

(iii) There are no defined pedestrian circulation paths on site, while car parks spaces are not defined.

(iv) Double occupancy rooms at the hostel a single window which appears inadequate for cross ventilation.

(v) The ironing room at the hostel is not a well defined space, as it appears to be only a landing stage before entering into the kitchen/box room space. Site visit showed that it is used as a storage point for dilapidated furniture, obviously indicating a lack of storage space.

(vi) Sanitation facilities appear not properly looked after.

RELEVANCE OF SDTC TO PROPOSED WORK

The SDTC is relevant to this study because of its pioneering efforts art women improvement. Also as a government funded establishment, it provides a basis for comparison with privately funded institutions of a similar nature in terms of effectiveness of funding, results obtained available and so on.

4.2.0 ST. BRIDGIDS SOCIAL CENTRE SABO, IBADAN: CASE STUDY TWO

INTRODUCTION/HISTORY

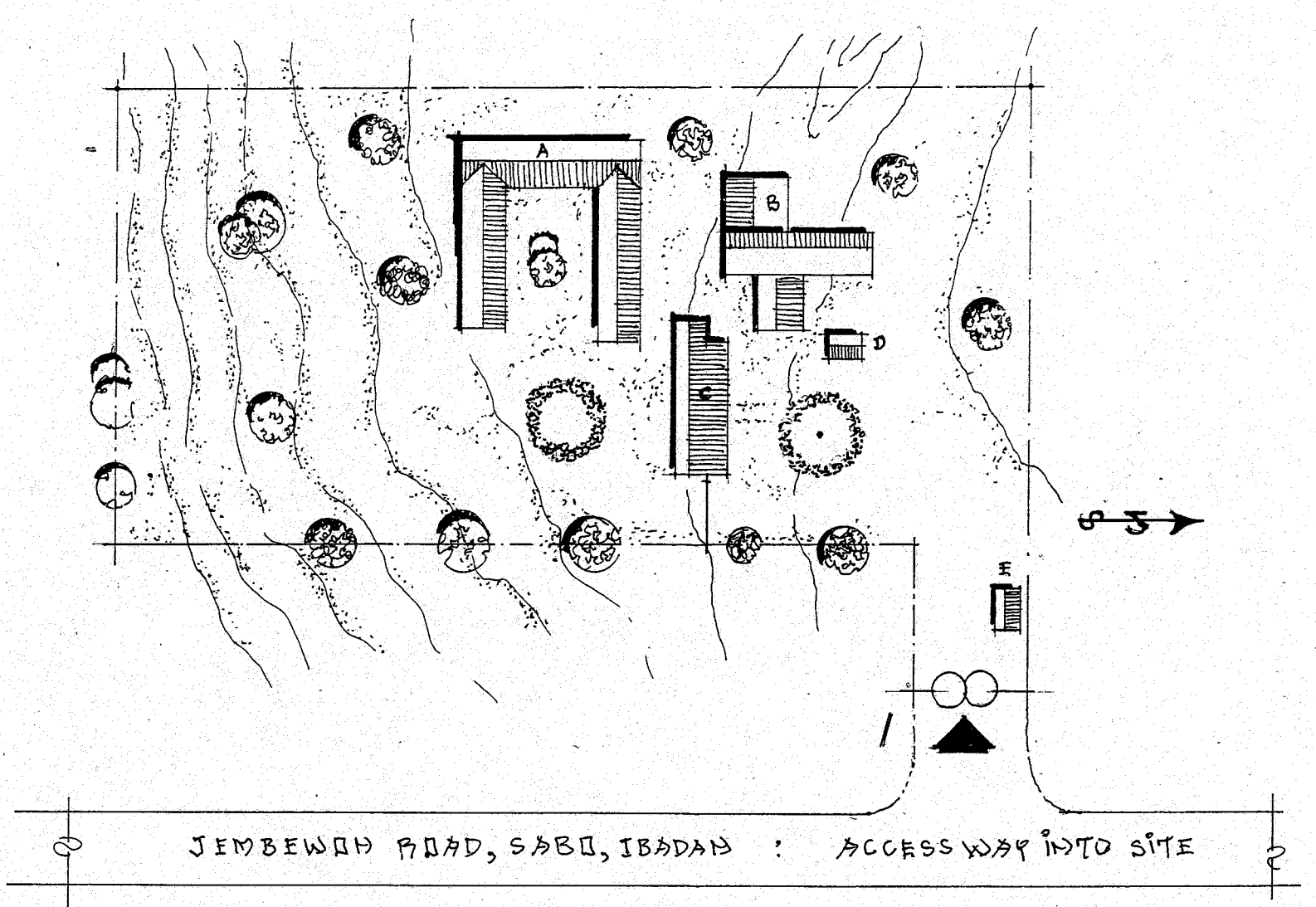
St. Brigids Social Centre was established in 1963 as a centre to help young women who were unable to continue their education for one reason or another, to acquire some other relevant skills with the aim of eventual self sufficiency and self employment for each entrant.

Located at Jembewon road Sabo Ibadan, it is located on the axis leading towards the Central Business District of Ibadan. and is near a large trading centre of migrant workers from the Northern part of the country. The Centre is run by the Catholic Archdiocese of Ibadan, and to a large extent, Catholic doctrine prevails in it. The centre runs a government approved programme of National Diploma Programme in all the courses and vocations offered with an admission fees of N25,000.00 per participants. Subjects and vocations learnt are:-

* Home Economics
* Secretariat Studies and Typing
* Hotel Management and Catering
* Fashion Design
* Computer Studies

The centre also runs commercial courses twice a week for married women or those who want to acquire skills.

LEGEND	
A	HOSTEL BLOCK
B	PRACTICAL CLASSES BLK.
C	ADMIN. / CLASSROOMS
D	SIT-OUT (COVERED)
E	SNACK CHIOSK



ST. BRIDGID'S SOCIAL CENTRE, SABO IBADAN.

FUNCTION AND ARCHITECTURE

Located on a laterite earth site which slopes downwards from the entrance gate, St. Bridgids consists of three buildings which house all the activities. Essentially they are the Administration and Classroom block, hostel block and the practical block.

The Administrative block is a long two storey building with perforated bricks infill along the length, situated to the site of the main hostel and practical building. Offices are located on the ground floor and classrooms on both the ground and upper floors. This is the first building first approached on entering into the premises.

The practical hall actually has three component spaces within the large double volume space. Two kitchens with in-built cupboards, sink take up roughly one quarter of the space at the extreme left of the hall.

The next subsection on the extreme right of the hall is meant for the study of hotel management knitting and sewing classes and has several work tables arranged in rows. At the middle of the block with volume is the demonstration class for practical.

MERIT CRITIQUE

(i) Well developed trees provide shade around the perimeter of the site; having evidence of good landscaping in terms of hedges, shrubs and trees.

(ii) There is provision of hostel accommodation for trainees from distant towns.

(iii) There is adequate land area within the premises for outdoor activities.

(iv) The practical demonstration class room are adequately equipped to conduct practical exercises.

(v) The hostel rooms are properly screened facilitating privacy of the occupants from adjusting premises.

DEMERIT CRITIQUE

(i) No defined circulation pattern in terms of walkways and vertical movement for pedestrians and cars respectively.

(ii) Car parking area in front of the Administrative/Classroom block is not defined.

(iii) There is inadequate area in the knitting and sewing room for workspace as machine equipments are placed along the body.

(iv) There is no provision of an exhibition/gallery space for finished items; because a centre which trains young women, it ought to have a sizeable exhibition space for finished handcrafts which could serve as a spur to the trainees, especially if through exhibition of the articles some are sold to customers. In this way students could actually realise that a living can be made out of their very own work.

(v) Storage spaces are not adequately provided for all items of equipments, so that it can be kept out of sight, in order to reduce risks of accidents.

(vi) The platforms with taps provided for washing clothes are good idea, but more space is needed around the facility.

(vii) In the classroom block, space is inadequate for both the number of students and the items of equipment installed in it.

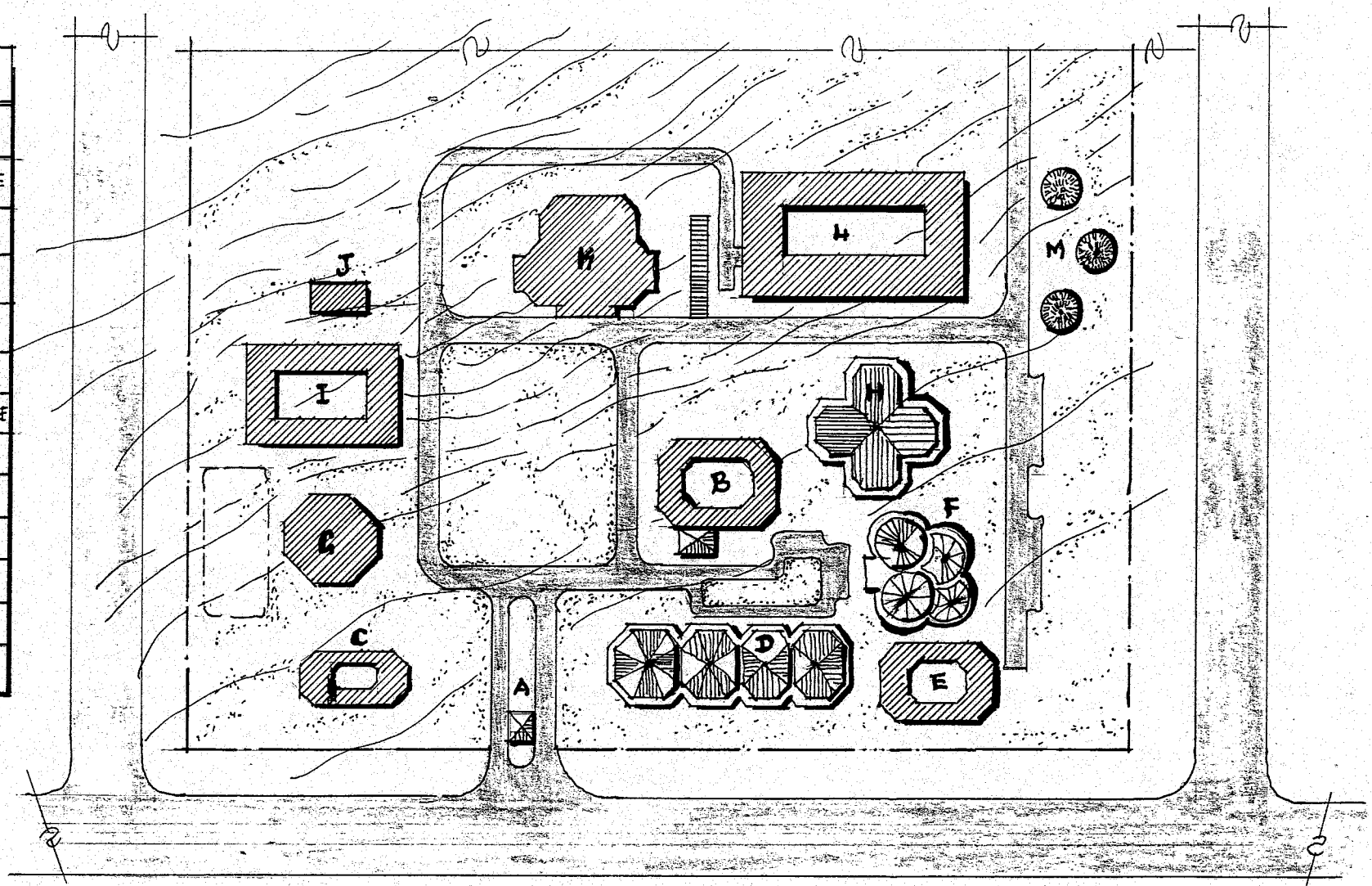
RELEVANCE OF STUDY TO PROPOSED WORK

The relevance of this study to the proposed work is that it shows the scope of a privately run institution in an urban centre, which is an example of the prevalent facilities for the training of young women towards self employment.

St. Bridgids programme however shows one thing: the planning inadequacies which can result from the increase of student intake without commensurate expansion of facilities to cope with various diverse courses taught.

It also typifies a situation in which there is definite focus or emphasis on particular courses or skills acquired by individual participants.

LEGEND	
A	GATE HOUSE
B	ADMIN/RECEPTN/HALL OF FAME
C	TRAINING CENTRE
D	SHOPPING CENTRE
E	ARTS & CRAFT GALLERY
F	CATERING SCHOOL
G	DAY-CARE CENTRE/CRECHE
H	RESTAURANT
I	HOSTEL
J	GENERATOR HOUSE
K	AUDITORIUM
L	GUEST ACCOMODATION
M	BUSH BAR/SEATOUTS



WOMEN CENTRE, CENTRAL BUSINESS DISTRICT GARKI, ABUJA ...

4.3.0 WOMEN CENTRE, CENTRAL BUSINESS DISTRICT, GARKI, ABUJA: CASE STUDY THREE

INTRODUCTION/HISTORY

The Better Life Centre is a proposed development in the Federal Capital Territory located at the Central Business District Garki Abuja. It is meant to serve as a training centre for the Better Life Programme, the aim of which is stated as follows:

".....The Better Life Programme plan to build a model resource centre which will serve amongst other purposes, as a training centre and data base for information and data gathering on all aspects of human life, most especially matters concerning women and development in Nigeria." (Mrs Mariam Babangida).

Located in the central district of the first phase of the FCT, the approximately four hectare site is bordered by primary roads on the North and South and access roads on the East and West sides.

The facilities provided by the centre are as follows:-

(i) Administrative/Reception/Hall of fame

(ii) Arts and Craft gallery

(iii) Restaurant

(iv) Stopping centre

(v) Guest Accommodation

(vi) Multi-purpose Auditorium

(vii) Training Centre

(viii) Childcare facilities/creche

(ix) Future Development Areas

FUNCTION/ARCHITECTURE

(i) Administration, Recreation And Hall Of Fame Building

As the main focus on the site, this building comprises three floors arranged round an internal quadrangle fitted with transparent roof light covering at the top. Executive offices are located on the middle floor with computer centre and library on the floor above.

The pyramidal covering on the reception hall is first thing a visitor to the complex notices.

The administrative building houses the Hall of Fame where a permanent exhibition of portraits and sculptures of women in society are displayed.

(ii) Arts and Crafts Gallery

This is for the sale and exhibition of arts and crafts products. Visitors to the building will be able to see crafts people at work on the ground floor – a deliberate design feature. Also an open air crafts workshop is to be provided for such crafts that require outdoor preparation. Permanent exhibitions are to be held on the upper floor in the six various shops of various dimensions that are provided for that purpose. Also on the upper

floor are administrative offices with the gross floor area cover a total of $11m^2$. The plan configuration is generated from a hexagon.

(iii) **Shops and Shopping Centre**

The building is of two storeys and features a double volume entrance and central Ratio, Thirty-four Shops occupy the ground floor varying double in size from $6m^2$ to $10m^2$. These shops run on a commercial basis, leased to individual or corporate enterprises, shops on the upper floors are larger, ranging from $10m^2$ to $18m^2$. Spatial allocation of this building totals to $1020m^2$.

(iv) **Training Block**

The building has three classrooms, one demonstration room and other supporting facilities. It is meant for the use of the actual rural dwellers who will be admitted into the centre for vocational skills.

(v) **Restaurant**

The restaurant has a gross area of 825m2; designed to be a formal dining area. The dining areas within the restaurant have various sizes. The largest size which accommodates 80 persons, while the smallest area is suitable for 30 persons.

(vi) **Day Care Centre**

Intended for working mothers directly serving in the resource centre. It is designed to cater for children of age range 8 -12 months and toddlers

MERIT CRITIQUE

(i) There is adequate provision for parking spacers which are properly demarked.

(ii) There is evidence of good landscaping on the grounds of the site.

(iii) The arts and crafts building has a deliberate design feature of a mezzanine floor affording visitors to the building to see the crafts people at work.

(iv) The provision of a Day-Care Centre makes it encouraging for intending participants with children.

DEMERIT CRITIQUE

(i) There is no evidence of Architectural composition at the centre as what is seen on ground is a mere provision of dispersed facilities on the site. No true intra building connection can be said to exist.

(ii) Arrangement of the shops on both floors, most especially on the ground floor, is claustrophobic on the plan.

(iii) The background plan shapes of most of the corners of the buildings creates critical angles within the building spaces.

(iv) The training block is not justifiable for rural dwellers use as villagers are used to simple or rectilinear forms – thus representing a poor marriage between structure and intended user. Rural people spend most of their activities in an outdoor setting.

(v) The restaurant is designed for formal dining which definitely cannot attract rural dwellers as per cost and setting.

(vi) The architecture of the training centre for rural dwellers have not considered a space which though will not be totally in the open, but would at least have a definite indoor-outdoor relationship that would be obvious in plans, sections and elevation.

RELEVANCE OF STUDY TO PROPOSED WORK

The women centre at Abuja was deemed relevant to this because it is a proposal for the headquarters of the Better Life Programme which incorporates several skills and generates several use areas as a result. In this respect it differs from others. Also its functional base which is the Federal Government makes it unique as admission fees are highly subsidised compared to privately run like centres.

The grandeur appearance of the centre has eclipsed the original function to which it appears the centre was meant to provide training and teaching base for rural women skills and their propagation thereof. The spatial demarcation and allocation is totally out of scale and the large parts unnecessary in places like guest accommodation, restaurant, shops for example.

It is unlikely that the rural women will be able to function effectively in such an alien built up environment; of which study concluded ascertains this.

It is however grafting to note that consideration was given to indirect users of the centre in terms of children of participants and workers by the incorporation of a day care centre and also provision of auditorium for commercial purposes which is a source of income generation for the centres up keep.

As a general overview, the Garki Centre though it recognises the need for exhibition, display, commercial and ancillary spaces has proven to be under utilized in some aspects e.g. Training Centre, Restaurant and also a share loss of focus of intended use e.g. provision of guest accommodation which its rooms are leased out to people in the city.

CHAPTER FIVE

5.0.0 DATA COLLECTION

5.1.0 LOCATION CHARACTERISTICS OF BADAGRY TOWN

Badagry town is bordered by calm glassy waters with palm and acasia trees surrounding them on all sides.

Badagry town is located in the south western extreme of Lagos State. It is situated 19 kilometres away from the international border between Nigeria and Republic of Benin. Badagry lies on latitude $6^{0}25N$ and latitude $2^{0}53E$.

Badagry has the historic antecedent of being the first Nigerian town where white missionaries pitched their Apostolic tents on their arrival in Nigeria in 1842.

5.2.0 CLIMATIC CONDITION

The climate of Nigeria in influenced mainly by the wind system. One is the rain bearing southwest monsoon, which blows from the ocean. The other is the dry dusty northeast trade wind that brings harmattan, which comes from the Sahara desert.

It was necessary to collect the relevant climatic data since an effective comfortable living/working environment level is dependent on maximizing the aspect of climate. The factors consists of rainfall, relate humidity, temperature, wind and sunshine.

5.3.0 RAINFALL

Badagry has a tropical climate with two district seasons. The rainy season and the dry season. The rainy season or wet season starts from early March and ends in late October while the dry season starts in early November and ends in February. The town has an average rainfall of above 185mm of which falls during the first maximum peaks of rainfall from May to July and the second smaller peak is in September and October.

However, the mean monthly rainfall taken over long period is useful especially in the determination of adequate slopes.

5.4.0 TEMPERATURE

The air temperature in Badagry is just under body temperature making it difficult to loose heat by radiation.

The mean monthly temperature ranges between 25.7°C and 30.2°C in July and February respectively. There lowest temperature is recorded in June and September. This shows a constantly high temperature throughout the year.

5.5.0 HUMIDITY

Generally, the relative humidity is high, it falls between 60% to 85%. The moisture contents of the air accompanied by high temperature making

the weather a little uncomfortable than in places of low humidity but high temperatures.

5.6.0 SUNSHINE

Lagos is exposed to an average sunshine hours of 200 hours sunshine annually. The amount of the sunshine ranges from a minimum of 1300 to 3200 hours. During the dry months (Nov – Feb.). The monthly variation is the amount of sunshine following the tread of an increase from over 275 hours on the town site in Badagry.

5.7.0 GEOLOGY AND TOPOGRAPHY

Badagry lies on a geological base of undifferentiated complex of mainly gnesis and migmatude. To the northeast of the town a more or less continuous steep outcrops of sedimented organic body forming rock. About 50% of the total land mass is covered with trees and grasses. There is also evidence of goal soil as reflected in the green bed and shrubs thriving luxuriantly because of the dominant wind from the Atlantic Ocean. The remaining 45% is covered with Lagoon and sea (water body) and its surrounding sands.

Badagry is adequately and naturally protected against flooding by its natural gentle slopes toward the Lagoon and the surrounding sea while drainage runs across the relatively flat area.

Trees within the town serves as wind breakers and shade against excessive sunshine.

5.8.0 SOCIAL CULTURAL LIFE

The ancient town of Badagry in Lagos State was founded very early in the 15th century (around 1425) by the famous farmer called "AGBETHE". This is the town called "AGBETHEGLEMEN" meaning Agbethe's farmland. At the arrival of the white men, they could not pronounce this name very well. They erroneously called it BADAGRY. Thus the small ancient town became BADAGRY. Badagry is the first town in Nigeria to easily boast of a storey building built in 1845. This ancient town is the exit point of the African in Diaspora through slave trade.

Egun and Awori are the traditional languages of the people of Badagry. Their main traditional occupation is fishing and farming.

The white enslavers travelled from Europe, Americas and Brazil to the slaves of "GBEREFO" beach in early 16th century for the infamous trans Atlantic slave trade in Badagry.

5.9.0 ECONOMY AND COMMERCE

Budagry has from the earliest time being has been at a vantage by its strategic position. She possess great prospects in water – inclined activities, commercially or otherwise and a balanced road network for easy access and

communication. Agriculture and fishing are the main occupation apart from business which thrives well due to the international border and Seme port.

The economic base of the study area (Badagry) can be grouped as follows:

(a) Agricultural Activities

(b) Industrial Activities

(c) Commercial Activities

(d) Commonly Development and Tourism

5.10 DEMOGRAPHIC DATA

POPULATION FOR BADAGRY LOCAL GOVERNMENT AREA OF LAGOS STATE.

YEAR	POPULATION ESTIMATES	GROWTH RATE
1980	56,200	
1981	57,324	
1982	58,470	2%
1983	58,640	
1984	60,833	
1985	62,049	
1986	63,290	
1987	64,556	
1988	65,847	
1989	67,163	2.5%
1990	69,191	
1991	71,254	
1992	73,393	
1993	75,594	3.2%
1994	77,861	
1995	80,000	
1996	82,603	

1997	85,081	3.75%
1998	87,634	
1999	90,263	
2000	100,321	4.00%

Source: National Commission in Badagry Local Government Office.

5.11.0 TRANSPORTATION AND TRAFFIC FLOW

The Road Network Pattern

The road network proposed has been drawn in such a way that it enables each settlement to perform functions without much constraints.

Four classes of roads overall have been proposed and distributed on hierarchical basis: The roads existing are as follows:

(a) 90 metre road reservation

(b) 60 metre road reservation

(c) 45 metre road reservation

(d) 18 metre road reservation

90 Metre Road Reservation (Lagos/Badagry Express Road)

The 90 metre wide road runs across the area in an east to west direction. This road is the regional express road, linking the area to other parts of the state. It is also the major road connecting the country with other parts of West Africa via Republic of Benin.

The importance of this 90 metre width road is the attraction of industries, commercial activities that can lead to growth of the area.

This road is also known as trunk A road. This means that the road is owned, maintained, repaired and serviced by the Federal Government for users utility.

60 and 45 Metre Width Road Reservation

These roads provide major road system connecting settlement. These roads facilitate movement of goods, commercial activities and people.

These roads are classed under trunk B. It is constructed and maintained by the Lagos State.

18 Metre Width Road Reservation

This 18 metre width road forms the major internal roads connecting one residential area to the other. This is a local government owned road. It is called trunk C road.

5.12.0 EXISTING LAND USE AND FUTURE TRENDS

The Interim Land Use Plan

The interim land use plan takes into consideration the goals and objectives of Badagry area.

These includes plans to foster the growth of Badagry to discourage further expansion of already congested metropolitan Lagos, too encourage the development of socio-economic activities in Badagry, and to exploit the natural potential of Badagry.

The Land Pattern

The various land uses identified includes residential, commercial, industrial, institutional, recreational, public and agricultural use. The percentage coverage of each land use is reflected below.

ANALYSIS OF EXISTING LAND USE OF THE AREA

LAND USE	AREA OF LAND (HECTARES)	PERCENTAGES OF TOTAL
Residential	951.53	2.92%
Industrial	39.06	0.12%
Institutional	968.68	1.97%
Commercial	31.25	0.09%
Agricultural Use	4,434.38	10.28%
Recreational/Open Spaces	26,129.51	13.63%
Total	32,554.41	100%

Source: Lagos State Badagry Local Government Urban Planning Office.

CHAPTER SIX

6.0.0 SITE ANALYSIS

6.1.0 CRITERIA FOR SITE SELECTION

Ajido village is a small fishing community located beyond Imeke village off Badagry Expressway. Ajido village is easily accessible from the Adaragun junction of the Badagry expressway and from the Ascon road from Badagry Township.

On its own merit Badagry is a tourist attraction area, due to its role as a slave trade town in the early colonial days. This is a factor which prompted past government administration to develop the Badagry area, particularly with reference to training activities. Another related choice of selecting Ajido village is that it's air marked as excision area (i.e. land use area released by government for community development).

Another factor which lies In favour of Ajido as a possible location for the centre is the fact that it can provide a steady clientele of visitors to the centre. This is because as aforementioned; Badagry is both a tourist and an urban centre. Badagry is located along a major thorough fare and trade route. Large numbers of people travel in both directions from neighbouring Republic of Benin beyond Badagry Township, into Lagos metropolis. Thus, the necessary patronage required by the centre can be guaranteed. Ajido village also has the merit of being a place which has a history of the practice of two of the crafts intended to be incorporated at the proposed centre;

namely Tye and Dye and weaving. This fact suggests that integration of other proposed crafts and vocational studies would not thus be difficult.

6.2.0 SITE LOCATION

Ajido village is a small fishing settlement in the Badagry local government area of Lagos State.

It is located off the Adaragun junction of the Badagry expressway The villagers of Ilado and Imeke are situated along the route which leads to Ajido village from the expressway.

Though the majority of the houses in the two villages leading to Ajido are mainly of traditional construction, in Ajido several buildings are built of cement blocks. This indicates a greater level of prosperity of the inhabitants and possibly a higher level of enlightenment also.

Numerous palm trees flank either side of the road on the approach to the village. The marsh land on the right hand side on approaching the village is presently used for fish framing purposes. In other areas, tall grasses cover the sandy soil.

Facing the site across the road is a fishing jetty; of which waters is the Bright of Benin. The developed area to the right of the Jetty is used by villagers to process Coconut husks into foot mats and similar articles and for production of Coconut oil.

The area considered suitable for the project is the stretch of land facing the waterfront, opposite the fishing jetty. This was selected because

apart from the aesthetic value of the overview of the water front which can be translated into an architectural feature, it is a very busy activity area with the potentials of the site to generate other activities which may depend on or be improved upon by the presence of the centre; as the site has been recognised by the State Better Life programme. The BLP presently, has provided a building on the right hand side of the road to the Jetty, to be used for production of coconut oil which is one of the main stay of the women in Ajido village.

6.30 SITE INVENTORY AND ANALYSIS

Site inventory and analysis is very important for any design to be functional and physically balanced with the site characteristics. Therefore, in caring out the site inventory for this design the following features will be analysed.

(i) Accessibility

(ii) Topography

(iii) Vegetation

(iv) Soil

(v) Temperature

(vi) Rainfall

(vii) Wind

6.3.1 ACCESSIBILITY

The site can be easily accessible from the Lagos – Badagry expressway. In addition to this, due to its location on the Coastal Line it can also be easily accessed from the coastal regions via ferries and boats.

6.3.2 TOPOGRAPHY

The site has a slight incline towards the waterfront. The firmness of the land increases with distance from the water front. The ground is covered on firm brown sand with the Laterite Content of the soil increasing in the Northern most direction. The site's slight fall towards the coastal line, consequently drains in this direction.

6.3.3 VEGETATION

The site is covered with tall-bladed grasses in thick groupings on firm brown sand and with heavy palm tree vegetation. These palm tree vegetation could be used for shading, and wind breakers.

6.3.4 SOIL

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

6.3.5 TEMPERATURE

The site experiences a bearable temperature at peak due to its proximity to the coastline. The site experiences more of the sea breeze,

thereby making the application of natural ventilation in the building very effective.

6.3.6 WIND

The site is influenced by two prevailing winds:

(i) North – east trade wind

(ii) South – west trade wind

The Northeast trade wind blows from the north-east direction towards the Southwards. 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 Northward. It is moist laden, which brings torrential downpour followed by occasional Thunderstorm on site.

6.4.0 ACCESS AND CIRCULATION

The site is strategically located and the main access into it is a road of 40 metres from the Aradagun junction of Badagry expressway. Also leading to it is the road from Ascon from Badagry township. On the site itself, there are no major roads within the site. The only means of circulation is the footpath linking each part.

6.5.0 UTILITIES

Facilities that will aid easy access to telecommunications, electricity and water sources are available on the site in form of telephone lines, electricity supply with major power at the boundary of the site on electrically

non-conductive pole lines running parallel to the road and pipelines of water distribution. A tarred road runs parallel with the site boundary.

6.6.0 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. This is so as the site is virgin haven not being utilized before.

CHAPTER SEVEN

7.0.0 DESIGN CONCEPT AND CONSTRUCTION

7.1.0 CONCEPT AND DESIGN

7.1.1 DESIGN CONCEPT

The concept of the proposed women skill empowerment centre (W.S.E.C.) is based on the approximate spatial proportions of the improved production process of the crafts considered, in terms of the nature of the process. In each case in the natural setting, some of the crafts are practised mainly outdoor. The practioners are thus susceptible to the vagaries of the weather. The time available for actual production is also limited by the presence of favourable weather. Thus in my idea for the W.S.E.C which is not only to serve as a skill acquisition centre, but also to encourage improved methods of production (in whole or in part) of the crafts and vocations undertaken. The processes have been grouped into categories depending on the degree of enclosure of the spaces where the particular part of the process take place.

Thus, there emerged the following groupings:-

- Closed
- Semi closed
- Open.

In the proposed improved process, taking conscience of their ergonomics design requirements, the crafts average out the above spaces in the appropriate following relationships:

- The "closed areas" translate into indoor workspaces. These have fixed, fall length walls and solids roofs.
- The "Semi closed" areas translate into the larger sized actual outdoor works space. These generally have a fixed roof, but are basically open sided with dwarf walling system.
- The "open" areas translate into the open work space – which requires only slight shade or mainly sunlight.

7.1.2 CONCEPT FORMULATION

The architectural concept of the proposed design of the women skill empowerment centre is related strictly to the type of individuals that would be trained at the centre. The design of the centre shall capitalize on the beautiful terrain and serenity of the area. The design is basically simple shapes with the utilization of courtyard for natural lighting and adequate ventilation which are appropriate to the requirement of the users of the centre, which is part of Ergonomic design of the centre.

The design restriction of the centre is that the elevations, which are the basic conveyors of first impressions about the centre, shall be designed in such a way that they do not contrast or conflict with the buildings in the town and the surroundings, since the aim of the centre is to draw the urban

woman and rural woman. There shall be some restraint in using elements to give both sets of women the right frame of mind in preparation for a comfortable stay at the centre.

7.2.0 MATERIALS AND CONSTRUCTION

The design intention is to commune with nature, as much as possible to its logical conclusion without sacrificing self-respect. To achieve this aim, the materials used and the construction are both considered.

The integration of natural materials and modern materials, applying a fusion of traditional and modern conception of building technique is adopted in order to achieve a natural setting in a modern environment.

Also attention was given to the choice of materials, considering the climatic factors affecting the site as previously analysed (site analysis), and bearing in mind that there are closed and semi closed facilities/space.

From all indications, semi closed spaces will be subjected to direct effect of weather than the indoor/close spaces/facilities.

Landscape materials to compliment and enhance the functionality of the centre are also taken into cognisance.

Building material includes:

- Terrazzo (multi-colour) for public circulation spaces such as reception halls, gallery, lobbies and classrooms.
- The use of sand Crete hollow blocks for building walls
- Roof lighting system over gallery

- Teracotta bricks for dwarf walls at semi close space and studio areas
- Ceramic floor tiles (non-slip) for conveniences and storage spaces.
- Lattice steel trusses for roof lighting over gallery and outdoor provision over semi close space (pavilion/emporium).
- Long span aluminium-roofing sheets due to its non –corrosive nature, durability and aesthetic.
- Built – in furnitures specially shaped workspaces.
- Panelled glass doors and windows to bring landscape appreciation into the interior.

Materials for landscape features include:

- Royal palm and golden palm
- Umbrella tree for shade
- Hedges and shrubs to define circulation paths
- The use of stone rubbles on certain landscaped areas to blend with the terrain of the environment.
- Interlocking brick paving for walkways
- Concrete trims used to retain the substrate of paving and to prevent edges from breaking away.
- Hardwood seat outs situated where canopies or shades are available.

The materials used for the entire site is to achieve aesthetic, durability, functionality and above all to achieve a blend with the environment.

7.2.1 CONSTRUCTION

Construction commences with preliminary works such as site clearance, provision of lighting and water, access road to site and also removal of elements which may impede work on site. The use of plants, machine and equipments will be employed depending on the area involved.

- **Foundation Type**

This is determined mainly by the soil type and its bearing capacity. Soil type of the subject site is of laterite and sandy soil content which is firm in nature.

- **Structural Systems**

Basically, columns and beam are introduced as outlined on the proposed structural drawing plans. Primarily walls are of hollow sand Crete blocks of 230 x 450 x 230mm for external walls; particle boards for wall partitioning curtain walls where appropriate; and dwarf walls of terracotta bricks.

- **DOORS AND WINDOWS**

Doors in public and semi public spaces will be of wooden parallel doors with glazing and anodized aluminium windows to allow for a feel or exterior spaces internally. Service doors will be of double swing doors with clear glass inset; while convince doors are of standard Wooden flush doors finished with veneer ply sheets.

Windows around the studios are of awning/projecting types, which enables for adequate air flow into and through the building interiors.

- **CEILING MATERIALS**

This includes polished wooden battens, Celotex boards and suspended ceiling system to create a lagging to accommodate service channels where appropriate.

- **FITTINGS**

These are final installations fixed on site within and outside the buildings; they range from electrical, mechanical and interior decorative fittings.

7.2.2 MATERIALS USED

(i) Metals

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

(i) Ferrous metals (ii) Non-ferrous metals

Ferrous metals include steel.

APPLICATION

They are used as structural elements as well as a range of building elements such as windows, doors and fasteners.

Non-Ferrous metals include aluminium, copper, lead etc. They are relatively light weight and also malleable. They are used as extruded forms

in alumium windows, doors and roofs. Copper could similarly be used as electrical wires and flashing as sheet forms.

(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. It is plastic in nature and its 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 or strength.

APPLICATION

Timber is mostly used for construction as propping materials, centering doors, window decks and floors.

(iv) **Glass**

Glass is an amorphous material that has undergone great pressure. It is characterized by its transparency, brittleness, hardness and chemical composition. They could come in sheets, 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.

7.3.0 SPATIAL REQUIREMENT

Space allocation schedule for the centre is as follows:

	SPACE	AREA (m^2)	
	ADMINISTRATIVE		
	OFFICE/GALLERY/MULTIPURPOSE HALL.		
	Offices	20	
	Toilets (Conveniences)	12	
	Reception	30	
	Auditorium (Multipurpose Hall)	300	
	Store	8	
	Gallery	196	
	VOCATIONAL STUDIOS/CLASSROOMS		
B	Principals Offices	35	
	Secretary	20	
	Staff Lounge	70	
	Classrooms	100	

	Stores	12	
	Toilets (Conveniences)	16	
	Emporium	30m	
	HOSTEL ACCOMMODATION		
	Room Units	42	
C	Kitchen Space	40	
	Laundry Space	40	
	Conveniences	20	
	Store/Box Rooms	12	
	Common Room /Lounge	42	

CHAPTER EIGHT

8.0.0. DESIGN SERVICES

The natural environment does not adequately provide for human comfort. Dwellings and buildings have been set out to provide protection from the environmental elements for the building occupants.

The main aim of environmental control is human comfort, which is paramount such that the psychology of human sensation and perception must be regarded as one of the basis of work environment.

Sometimes controlled conditions of temperature, humidity are required; of which any improvement in environmental conditions is regarded as worthwhile achievement. The effect which the building itself has on its own internal environment must be consciously considered; striking a balance between the use of the building, its forms, construction and its installations.

If satisfaction is to be achieved, it is vital to take into account the pattern of the use of the building and the way the fabric of the building will reach to the natural environmental conditions, installations, form, space, location of plant and disturbing ducts.

Not only must environmental consideration be taken into account in the fundamental design of the building, they must also balance one another. In addition these environmental factors interact with other aspects of interior design, convenience, and maintenance of spaces made by the selection and positioning of environmental control, for example the appropriated human

environmental requirement are light, air, warmth and in addition sound, humility and hygiene are relevant.

The comfort and efficiency the human requires to be maintained within a limited range of environmental condition, which is only a small section of the full scope found in nature.

8.1.0 ELECTRICITY AND LIGHTING

The Nigerian Electric Power Authority (NEPA), must be informed of the estimated electrical load expected to be consumed on site and a transformer is necessary to regulate the incoming currents. The service connection used like the meter switch board, panel board, and circuits used must be checked by the electrical engineer to certify that it is the appropriate material being used.

Conduits are embedded in concrete floors, walls, with convenient outlets and should be made easily accessible and adequately insulated. The buildings are to be supplied by four wires and a three phase supply. i.e. balancing of the load on the phase is achieved by serving different areas of the buildings.

The risk of fire and electrocution must be guarded against in electrical installation by taking precautions like introducing a circuit breaker.

Insulation

All conductors are to be adequately and properly covered with insulating materials.

Fusing

Each section of wiring installations must be protected by having a fuse in the circuit that will melt at the passage of any current surge unsafe for wiring channels. This prevents overheating and possible fire out break.

Earthing

All metal works could become live if insulation fray occurs so earthing is done on the metal works so that current flows to earth.

Alternate Power Supply

A standby generator is provided in the event of power outage/failure. Lighting is to be installed all over the site in an alternative in an attractive and natural manner.

8.2.0 MECHANICAL SERVICE

Environmental factors commonly reproduced by mechanical systems include temperature, humidity, air motion and dust. In order to achieve thermal comfort, the sign and orientation of mechanical services are important to note. Extractor fans are provided for in the kitchen. In planning the layout of these services, there must be adequate coordination between the various municipal bodies in charge of these services if a logical and economic plan and installation program is to be formulated.

Servers should also be considered due to their low flexibility. The specification as to duct size cover and access for any particular services will

be determined by the board concerned. All services must be kept at least 1500mm clear of tree trunks.

8.3.0 HEATING, COOLING AND VENTILATION

In achieving thermal comfort in the centre, factors to consider during the design and planning are the building location and orientation, choice of building materials and construction. The importance of ventilation and need for thermal comfort cannot be over emphasized, considering the nature of activities carried out and the nature of the site. Due to landscape nature on the site, the environment shall always possess cooling system to create comfort for the users.

8.4.0 WATER SUPPLY

Water supply tapped from public main pipe shall be the main source and means. Boreholes shall be dug on site, from which pumps are used to extract water and stored in the overhead tanks.

8.5.0 DRAINAGES AND SEWAGE DISPOSAL

Foul drain is directed into sewer where oxidation of organic matter occurs for its disintegration. Septic tanks are provided for so that sludge settles at the bottom and scum flouts to the top where bacteria dissolves it, clear liquid will flow into another tank where the septic tank must be large enough in accordance with CP 302:100.

8.6.0 REFUSE DISPOSAL

Dust bins are cheap methods for refuse disposal on a small scale. However, on a larger scale a central disposal collection point is provided for to deal with refuse generation. It should be positioned away from where wind could spread the smell around.

8.7.0 ACOUSTICS

Acoustics is the study of sound and its characteristics which affect time hearing of sound. Acoustics condition depends on the building shape, the people in it amid acoustic absorption characteristics of the surface. The main importance is that reflected sound or reverberation must be kept at minimum.

Insulating measures will take into considerations air-borne sound from external adjoining sites amid activities from road traffic. This could be reduced by providing a vegetation barrier through the introduction of high evergreen hedges which act as absorbers. Better screening can also be achieved by providing solid walls plastered on both sides. This reduces sound being transmitted.

8.8.0 FIRE SAFETY

The principal aim of precaution is simply to safeguard life and property and this is achieved by:

(i) Reducing fire incidences

(ii) Controlling fire propagation and spread

(iii) Providing adequate means of escape for occupants of the building.

(iv) Fire detection

The role of a fire detector is to detect and to discriminate between absence and presence of a fire. It should not be too sensitive as to give false alarms. Smoke detector and flame detector are placed along strategic parts of the buildings. The mode of operation of all detectors is simply by an activating process based on volume and rate of smoke, heat and flame.

The simple fire fighting equipments to be used are:

1. Bucket of sand or water
2. Soda-acid extinguishers

Fire escape means should be seriously considered by providing staircases that will inhibit fire spread and the materials should have a reasonable safety level in controlling fire spread and give occupants sufficient time to escape. Passages to exit are direct and unobstructed, well lit and accessible. Exit doors are well lit, accessible and satisfy a minimum of the fire rating requirement and other safety measures considered.

8.9.0 SECURITY

Security posts and guards shall be provided at strategic places to control and monitor the activities in the centre. Security guards shall communicate with walkie-talkies among themselves.

8.10.0 TELECOMMUNICATION

At specific locations on site, pay phones are to be installed so that visitors and occupants may communicate within the site.

8.11.0 MAINTENANCE

This is work undertaken in order to keep or improve every facility; every part of a building, its services and surrounds to a currently accepted standard and to sustain the utility and value of the facility. The type of maintenance that will be employed will be planned maintenance, which consist mainly of preventive maintenance and corrective maintenance, which include routine checks, serving and cleaning, restoration and replacement. This will be carried out to reduce the likelihood of the facility not meeting an acceptable condition.

CONCLUSION

The actualization of the edifice called the Women Skill Empowerment Centre will not be a forum where women meet and talk but a place where they will be empowered to further perform efficiently, their multifaceted role as wife, mother and partner in nation building.

In as much as women will not be empowered to such a scale as to abandon their traditional role in the society, they will be taught to think and act, not as lesser mortals but partners in progress. This will go a long way to make our women independent, sensible and above all self reliant.

The theory behind the science of ergonomics will take into consideration not only the act of information or skill impartation, but the harmonization of the environment and materials with the human body for the enhancement of lessons taught and received. This create an enabling environment conducive enough for skill empowerment.

A woman empowered will go a long way in enhancing and changing the distribution of both nation and family support and sustenance, as this will enable the woman to augment the need of the family and the society in general.

Economically, it will be worth the while of the participants as any skill acquired at the Centre will be translated into a gainful venture, boosting the economic empowerment of such a woman.

Finally, with the challenges ahead in the new millennium, the empowerment of women is the answer to societal peace and a plus to a nation's wealth. For every woman potential discovered, the greater the nation's wealth and the lesser the poverty rate.

REFERENCES

Callendar, J. (1980). *Time Savers Standards for Building Design Data.* McGraw-Hill Book Company. New York.

Dennis, D. A. Ityavyar (1992). *The State and Women in Nigeria*, Jos University Press Jos.

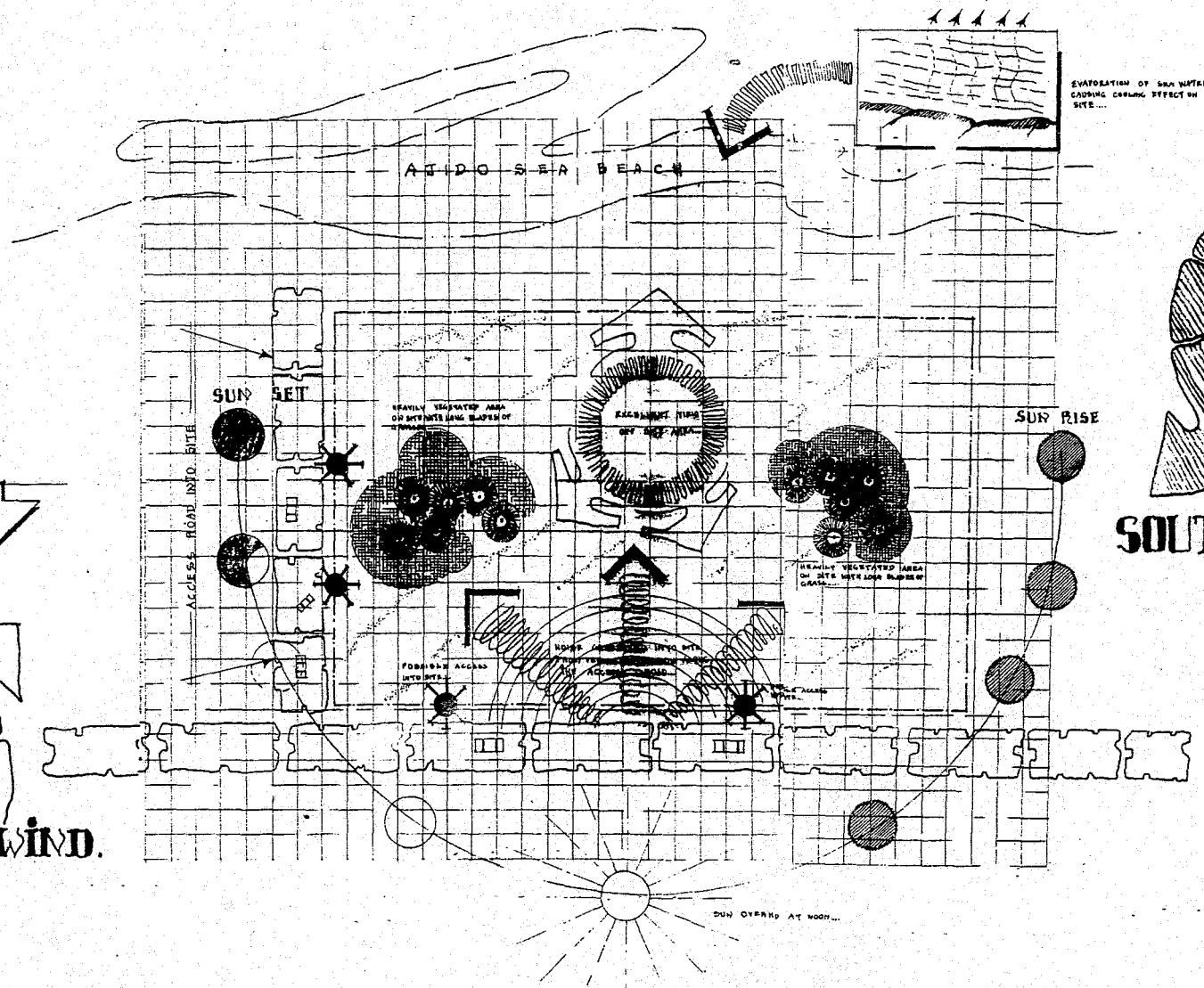
Itoro, E. A. (2001). *National Policy on Women, Gender Issues Magazine.* Canadian International Development Agency Publications. Vol. 1: No.1, pp.3-4

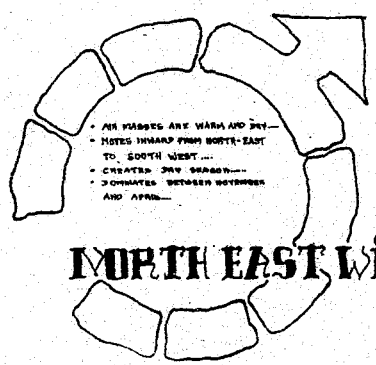
Mc-Cormick, E. J. (1990). *Human Factors in Engineering and Design.* Mc Graw-Hill Book Company. New York.

Etannibi, E. O. (2000). Women Empowerment for Participatory Development: *Women in Public Life Magazine:* Gender and Development Action Publications Lagos. Vol. 4, pp 12 – 14.

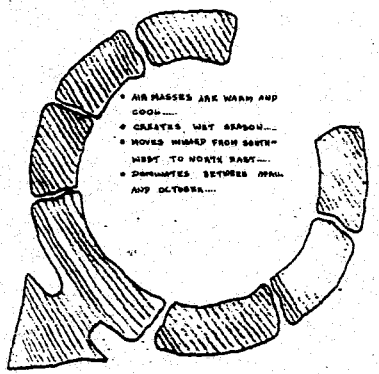
Wesley, E. W. (2000). *Human Factors Design Handbook*; Mc Graw-Hill Book Company. New York.

SITE ANALYSIS





NORTH EAST WIND.

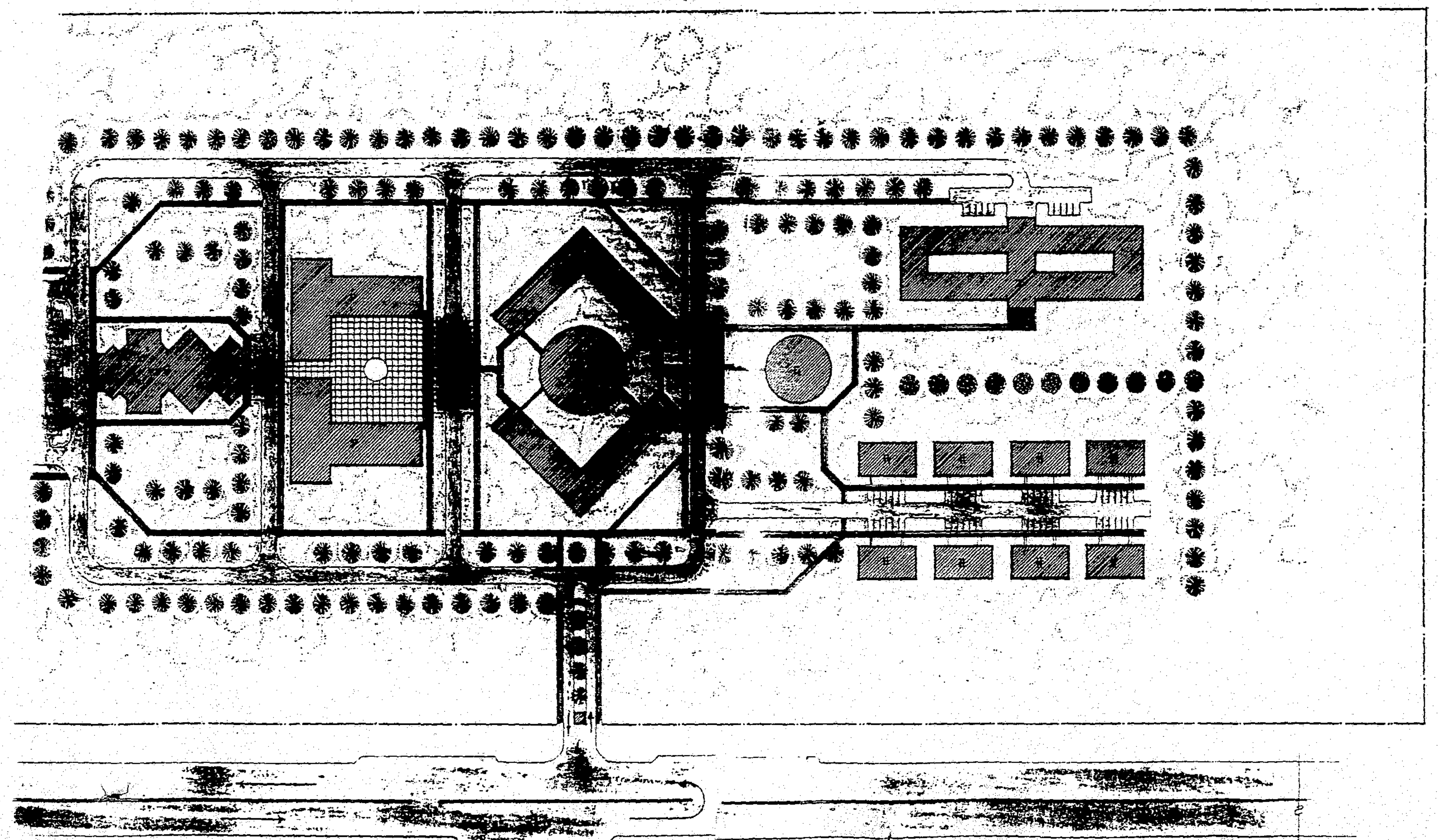


SOUTH WEST WIND.

SITE PLAN

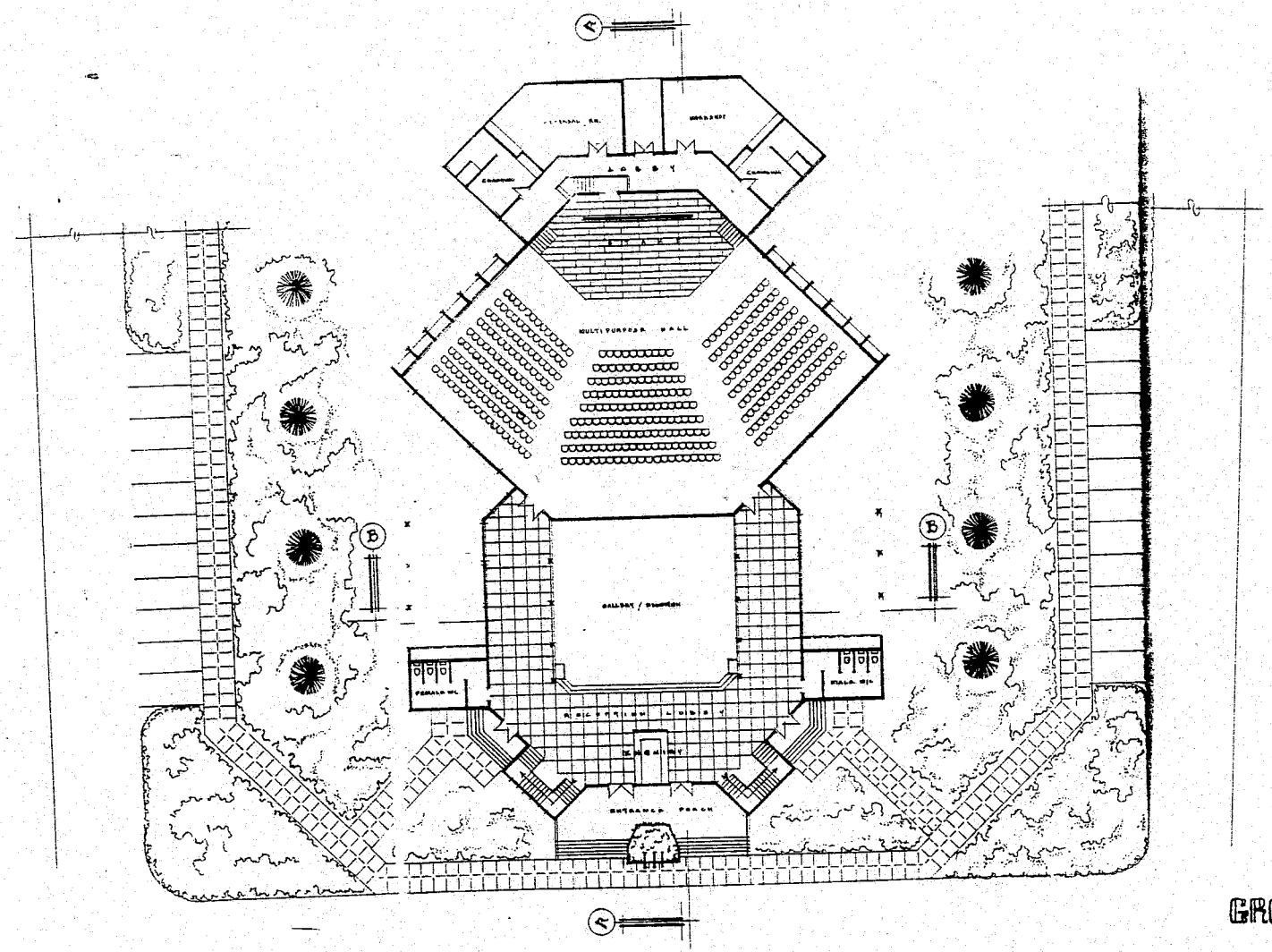
LEGEND

A	GATE HOUSE	D	COMMERCIAL UNITS	G	CRECHE
B	GENERATOR HOUSE	E	VOCATIONAL CLASSROOMS	H	STAFF RESIDENCE
C	[illegible]/ ADMIN/GALLERY	F	SEMI CLOSED PAVILION	I	HOSTEL ACCOMODATION

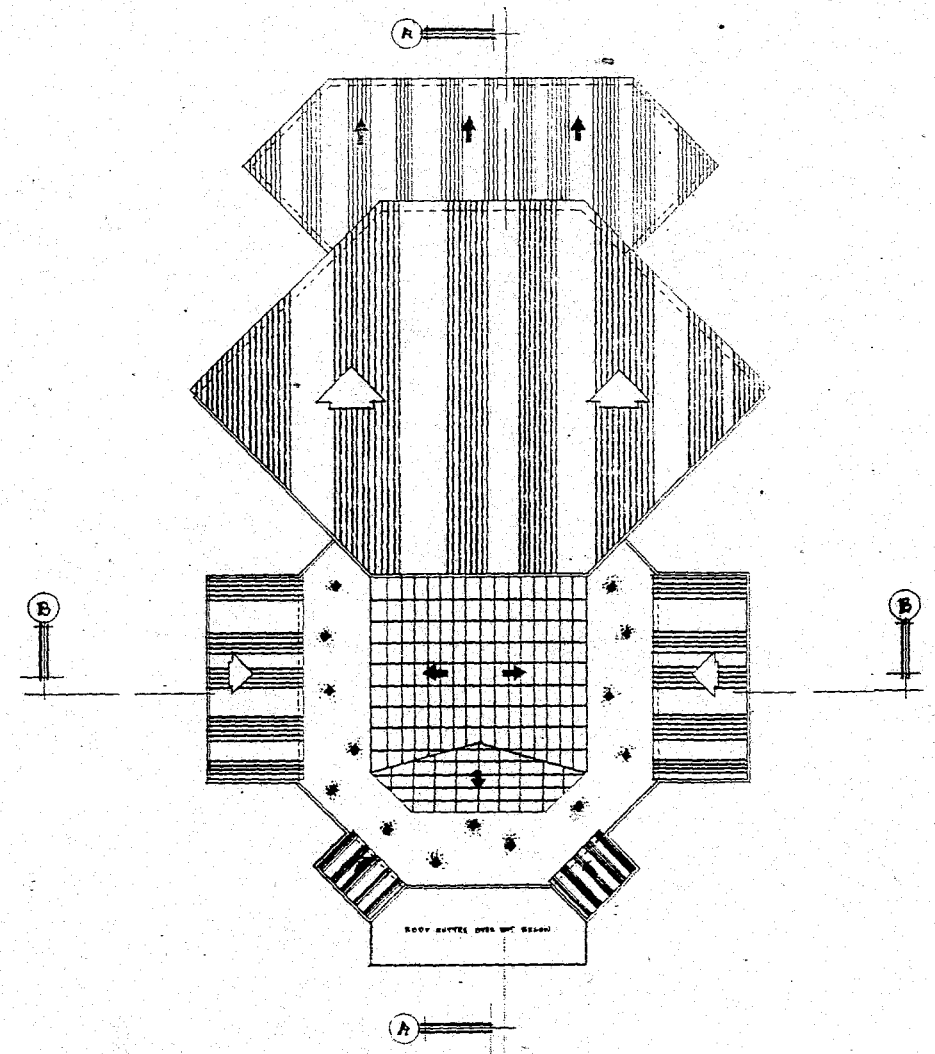


SCALE 1:1000

MULTI-PURPOSE HALL / GALLERY / ADMIN.

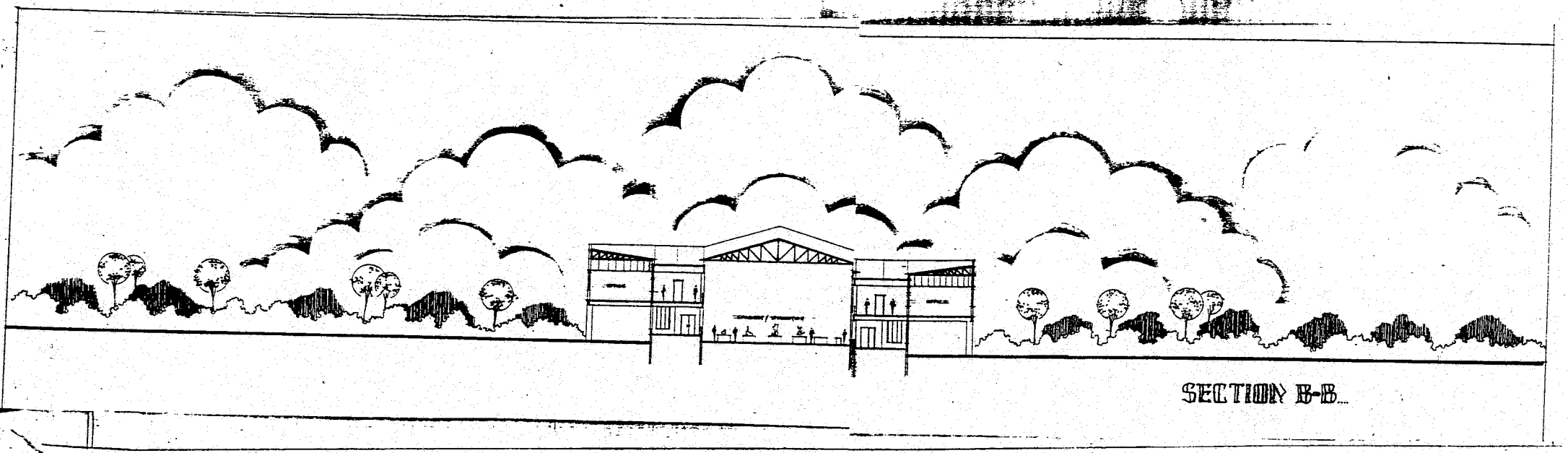


GROUND FLOOR PLAN.

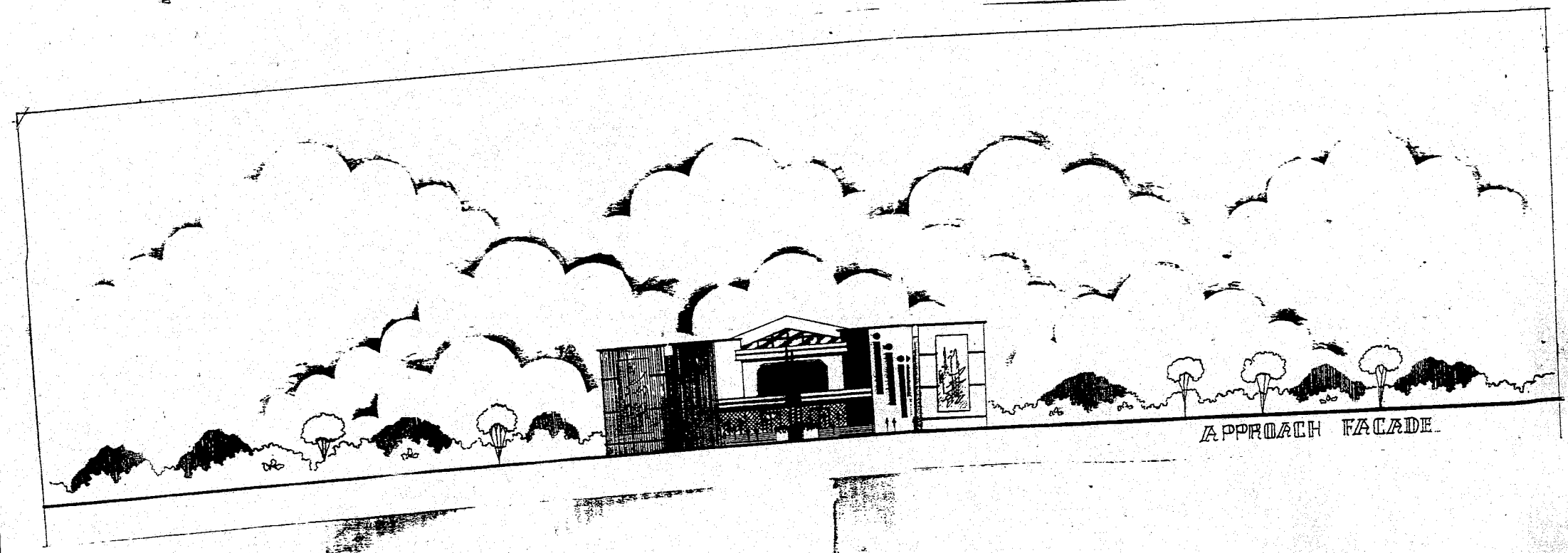


ROOF PLAN

SECTION A-A

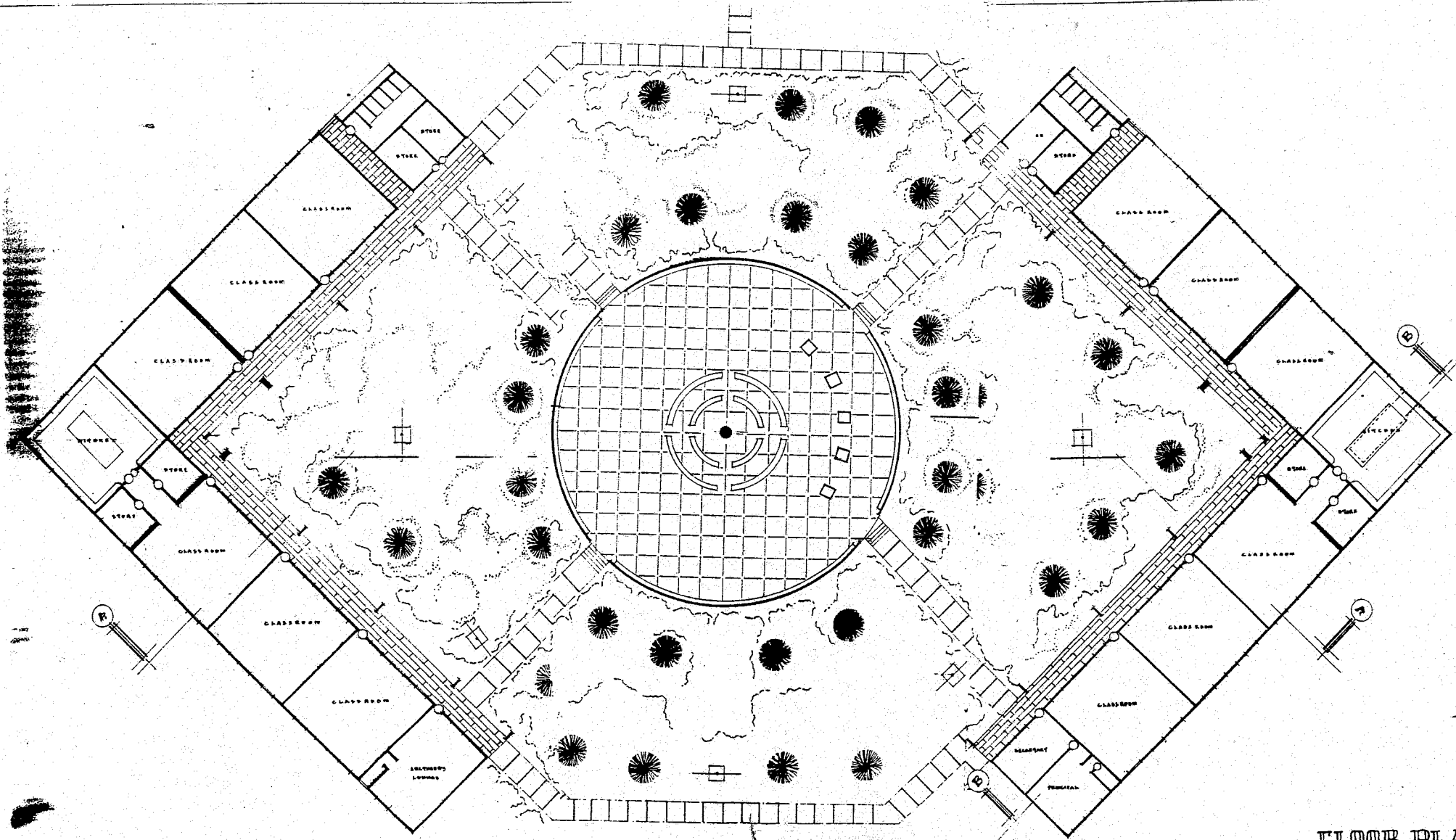


SECTION B-B...

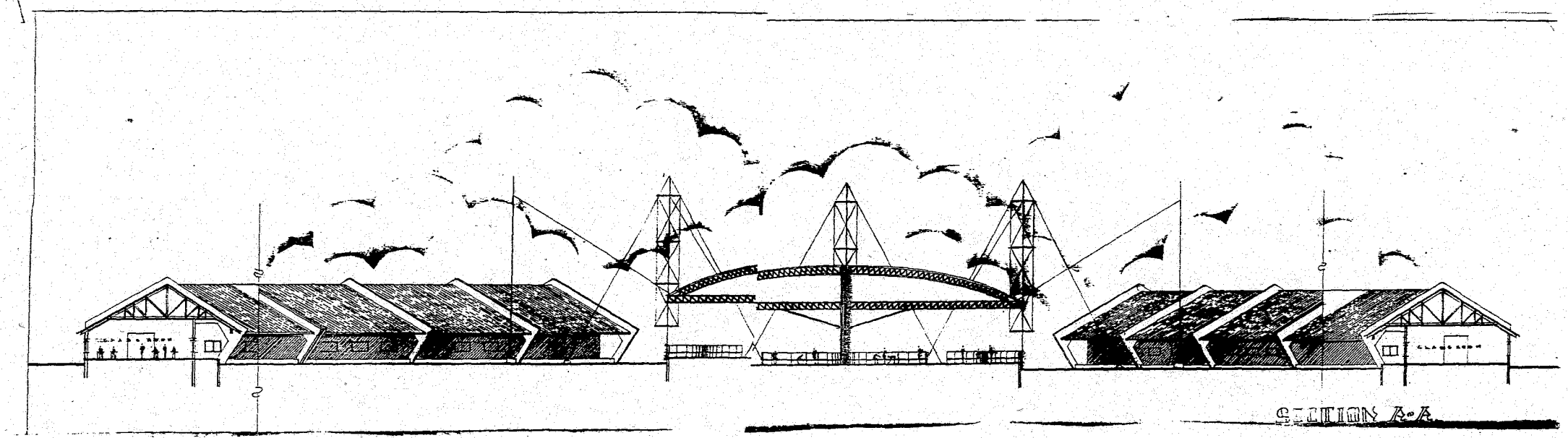


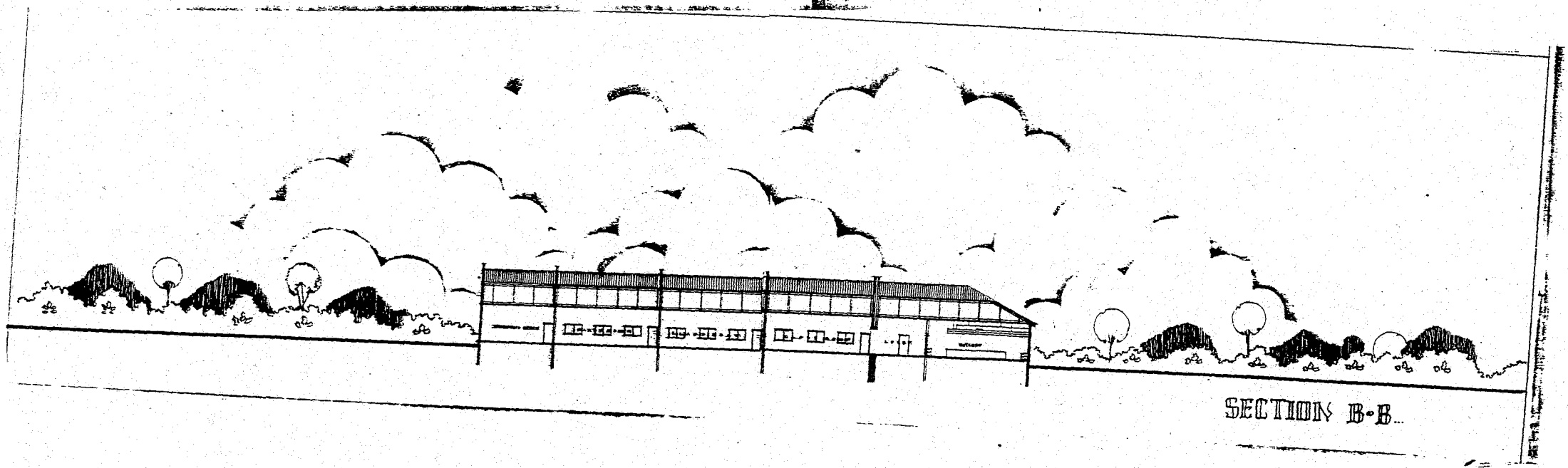
APPROACH FACADE

TYPICAL SIDE FACADE

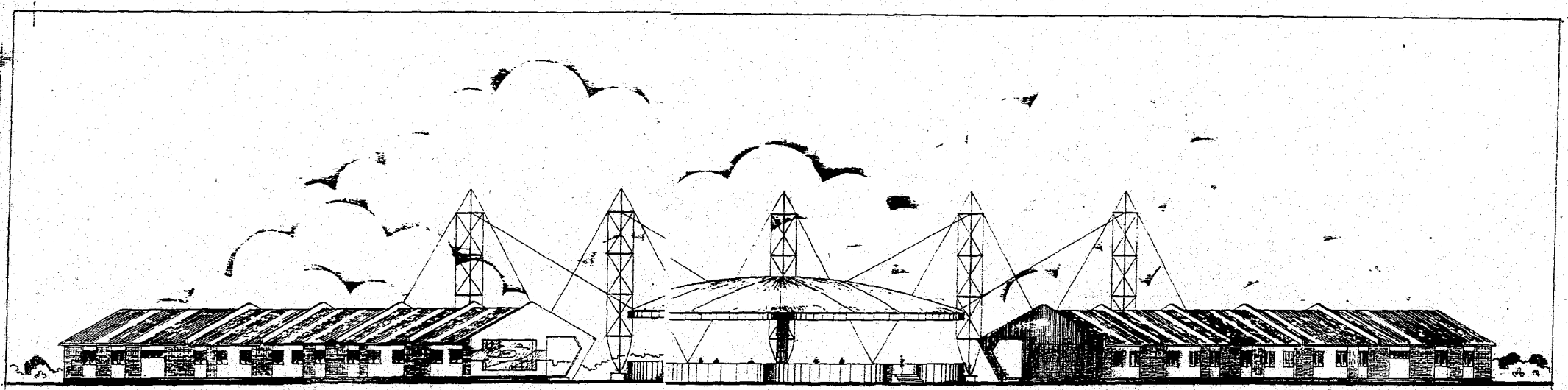


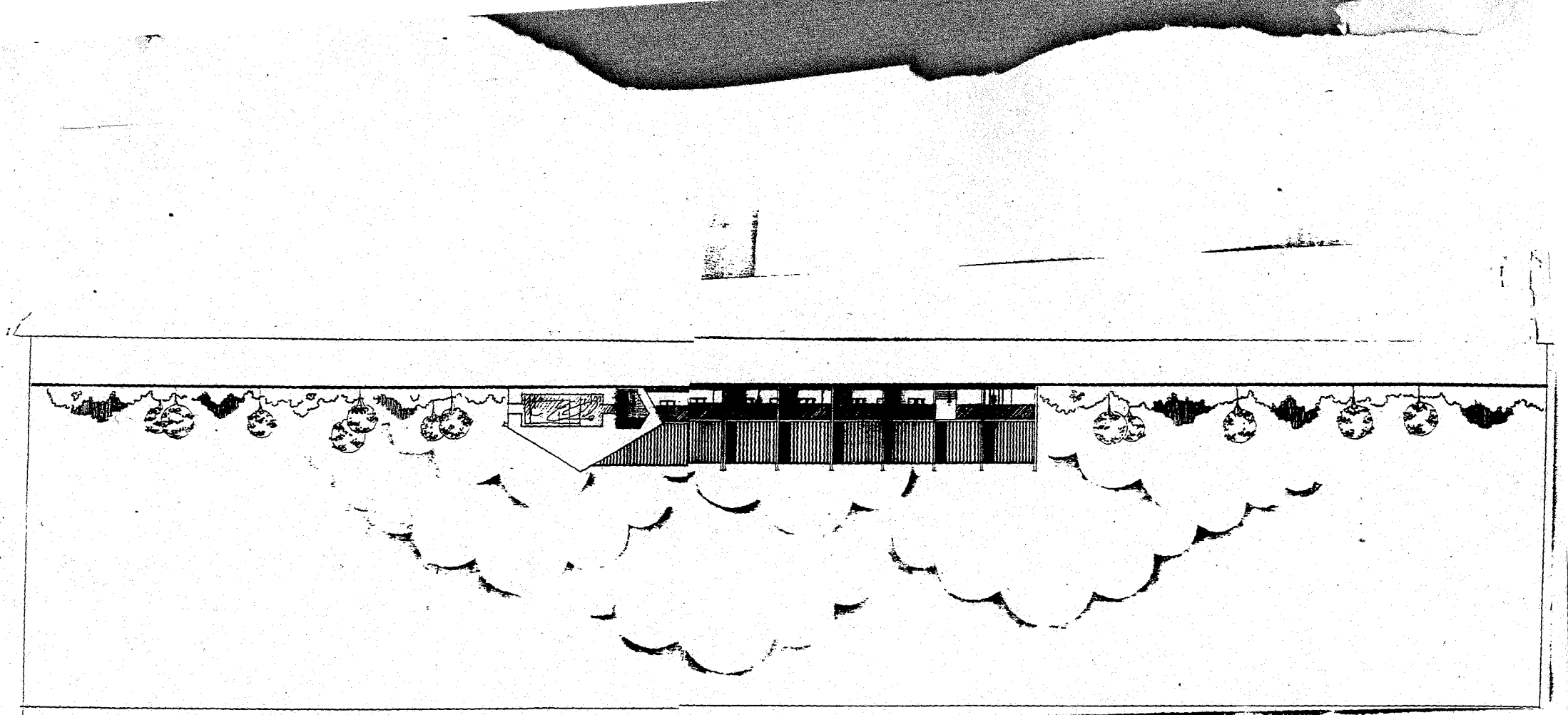
FLOOR PLAN


SECTION A-A

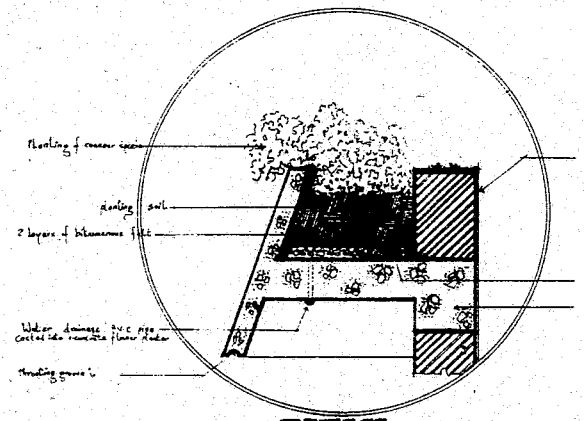


SECTION B-B

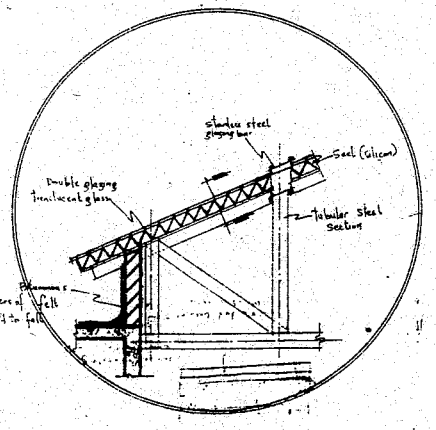




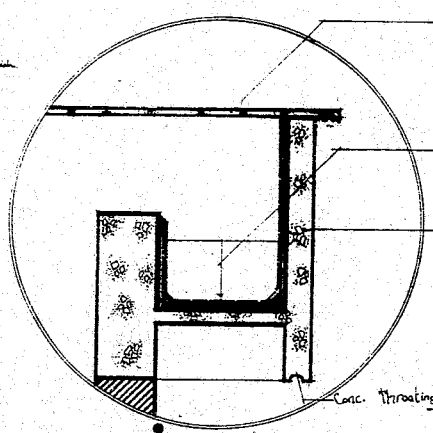
DETAILS



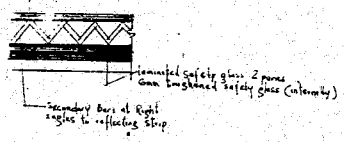
DETAIL
REINFORCED CONCRETE FLOWER PLANTER...
SCALE 1:10

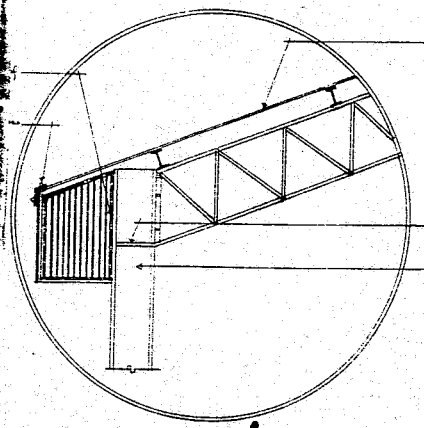


DETAIL
SKYLIGHT

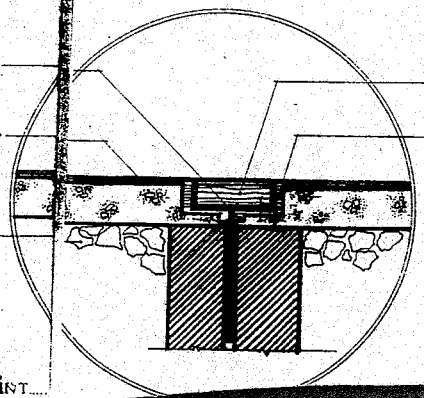


DETAIL
ROOF GUTTER PARAPET....
SCALE 1:10





DETAIL
ROOF CLADDING & FIXING TO STEEL PORTAL FRAME...
SCALE 1:10



DETAIL
FLOOR EXPANSION JOINT...