CRAFTS CENTRE FOR THE DISABLED, KANO
TOWARDS AN APPROPRIATE ENVIRONMENT FOR THE DISABLED

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DECLARATION

I hereby declare that this thesis was composed by myself and that it is a record of my own initiative and research work. It has not been accepted in any previous application for a higher degree. All quotations are distinguished by quotation marks and all sources of information are specifically listed and duly acknowledged by means of reference.

---------- 3-11-98 .

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CERTIFICATION

This thesis entitled: Crafts Center for the Disabled, Kano, meets the regulations governing the award of the degree of Master of Science in Architecture of Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and its literary presentation.

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He looks not on the outward appearance but on the heart.

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This thesis research is dedicated to my Parents Chief and Mrs. W.O. Adewunmi.

May God reward all your efforts - Amen.

ABSTRACT

Disabled people usually do not feel comfortable sitting down doing nothing especially in these present days. They desire to actively participate in the events of human life despite various handicaps they experience as they try to participate. It has also become an accepted fact that the major problem of this category of people is the environment, especially those with limb and visual disabilities. The former can understand and perceive the environment but lacks the power to move in it without difficulty while the latter can move well but cannot perceive the environment because the powers of vision are not present. This becomes a challenge, not only to the impaired individuals but mainly to the designers of the built environment to make the place barrier-free and accessible to the disabled users with little or no assistance at all.

In the Nigerian setting however, the disabled persons lack equal opportunities of being educated in a particular discipline right from childhood as their counterparts have thus they begin to fall into the lower and poorer classes of people as they have less chances of earning a living than others.

This thesis therefore explores the existing trends in catering for disabled populations in the form of homes and rehabilitation centers. The architectural objective is to provide facilities that will be accessible to the disabled folk, an appropriate environment suitable for learning and training in crafts, and to help solve some problems that disabled people face in the built environment.

A review of literature on the subject was carried out and existing facilities for rehabilitation of the disabled were observed. A comprehensive analysis of the considerations given when designing for the disabled was done. These information was put together to arrive at the concepts and the architectural design of the proposed crafts center for the disabled.

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CHAPTER ONE: INTRODUCTION

1.0 A Crafts Center : The Design Philosophy

A craft may be defined as a trade or a skill possessed by a person. When a person possesses a skill, that individual has chances of making an impact on the society and also making life better for himself and his/her family. This is even truer for people with disabilities. When they can contribute something to society, they prove wrong the cruel concept by others that they are parasites that have nothing to contribute to society and with no wish to do so [1]. The truth however is that many disabled people, with disabilities covering a wide range, desire to be part of the society. They wish they could do something that brings recognition and attracts people's attention but they are at a loss as to how to achieve their desire because of the handicaps put in their way. Apart from these, the attitudes of the society towards them is also a major handicap in their way. In many communities, isolation and even insulting languages are attached to disabled people. Some tribes name a child after their impairment, for example, Mpofu meaning in swahili blind or Mapula which means deaf are names of people. This could be dehumanizing and will certainly not help in raising the child's self esteem. Right from childhood, he is made to think himself as useless and problematic.

In the past and even up to the present times, tribal beliefs strongly influence the way disabled people are seen and treated. In a family, a child with disabilities especially from birth is thought to be a punishment from the gods for one sin or the other. They may be considered as bad omens and thus rejected and abandoned. Many able bodied men do not wish to marry a

disabled woman for fear that she may not be able to have children or that the disability may be passed down to the children. On and on, the list could go of the many negative attitudes posed to this class of people by different sectors of society. However, there is hope as these attitudes are changing due to the awareness created by the disabled themselves, that they have civil rights which should not be abused.

A craft center for the disabled therefore is an attempt to provide solutions to the problems of the disabled in the Nigerian society in architectural terms. The first and basic problem having to do with both the built and natural environment is accessibility. Accessibility is a situation where by a space can be entered and used without difficulty. For the disabled, especially those with mobility impairments, the designed environment has not been provided with facilities to ease their movement within it. Barriers are often encountered by those confined to wheelchairs preventing them from getting access to public buildings. People with sight impairments often fall into hazardous situations, when considerations for their class of users is not taken in the design.

Another problem is the issue of having a suitable environment to cater for the needs of the disabled and to meet their spatial requirements. Like any other person, a disabled individual would love to be housed comfortably, employed, shop and participate in other activities that make life pleasant. Their environment however posses problems as a result of their disabilities. This project seeks to provide an environment that will appropriately meet the needs of this class of users in a learning and training atmosphere. This is to provide them with the means of being educated in a trade or skill especially for those who cannot afford to attend the institutions of formal learning because of the cost implications and the difficulty of obtaining suitable ones for handicapped students. The idea of a crafts center comes up to provide a situation of informal learning, where training is done in an apprenticeship system. The needs of each individual is

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[1]Olunloyo O. (1991)

given attention and dealt with individually and not as a group. The strengths and weaknesses of each student can be easily analyzed and areas of good performances can be recommended by the trainers.

This center therefore is intended to cater for unique needs of specific users in architectural terms.

1.1 Aim And Objectives

The aim of this research is to propose architectural solutions to the problems of the disabled in the built environment. Such problems include those of inaccessibility and inability to use a space due to handicaps.

-- The Objectives of this project are as follows:

- To propose an institution where skills could be taught and learned by disabled people so as to give them a good chance of having a dignifying means of livelihood in the society.

To create an accessible space conceptualizing accessibility as a situation whereby no barrier is placed before the user in circulation and use of a space

To design an environment that is fitting and suitable to both disabled and able-bodied persons. This is to facilitate relationship between the two.

To created an appropriate learning and teaching environment for the disabled.

To create an environment that is aesthetically appealing to the users of the space by using the building and its landscaped environment.

1.2 Scope

The research problem has to do with designing for the disabled specifically in a learning environment. This research has reduced the scope of the disabled to consider only the visually and mobility impaired persons. This has been done because these two impairments mentioned have been known to restrict movement more than all others. While the former limits movements because of hazards of visual insensitivity, the later hinders movement because the organs created naturally for that purpose have become unusable.

The type of training adopted for the institution is the informal training mode where students learn by apprenticeship.

The design caters for students covering a cross section of youths and adults. Provision is made for classes where individual's strengths and weaknesses will be observed and each student helped to develop in skills where they excel most.

The design covers the basic needs of students in a form of boarding institution. The following accommodations are provided:

- Administration
- Workshops and Classrooms
- Health facilities
- Cooking and feeding facilities
- Hostel facilities
- Staff housing

The full architectural drawings are provided for all the units except the staff housing area. The area designated for that purpose is however highlighted on the site. The project provides facilities to cater for an estimate of 200 students apart from auxiliary, academic and

administrative staff. This number was arrived at based on the population of the visually and mobility impaired people in Kano state. This defines the scope of the project as perceived from the designer's view. It is however, not exclusively closed to other developments as the trends or peculiar situations may demand.

The likely sponsor of this project is the state government assisted by the federal government through the Petroleum Trust Fund (P.T.F) as is already being done in the state.

1.3 : Research Methodology

This research was carried out by using various methods of collection of data, analyzing the data and proposing certain recommendations from the synthesis of the data collected.

Data was collected in the following ways:

- Primary sources: Primary information was collected from case studies of existing institutions of similar purpose. These institutions were visited and data collected. Government parastatals that take care of the affairs of the disabled in their localities were also visited and relevant information concerning their activities collected.

  Data relating to the proposed site for the crafts center was collected from land surveying and planning authorities of the state it is to be sited.

- Secondary sources: Using this means, information was collected through review of past literature on the subject. Magazines and journals of foreign publications were consulted and relevant information extracted from them. Sample opinions were obtained from affected individuals i.e. the disabled from various parts of the

African continent through secondary sources such as magazines. Observations were made from interaction with disabled people in the process of carrying out the research.

1.4. Sources of Information

The following is a list of the institutions visited for information i.e. apart from the case studies:

- Kaduna State Rehabilitation Board/Rehabilitation Center, Kakuri, off Makera road, Kaduna State.
- Ministry of Women Affairs, Youth and Social Development, Kano.
- Kano State Rehabilitation Board for the Disabled, Audu Bako Way, Kano.
- Ministry of Regional Planning and Land Survey, Kano State. Dr. Bala Mohammed way, Kano.

1.5. Architectural Significance

The wide topic area for this project is designing for the disabled. This project seeks to look into the evolving of appropriate, suitable and useable spaces for the disabled, especially the visually and mobility impaired in a learning/training environment. Much has been said and proposed and even done on this subject in the past. However, it is architecturally sound and relevant to look into the spaces that have been designed and to observe those that have not been functional in order to provide facilities that will be totally barrier free. Also, there is the desire to see how architectural solutions can be provided to the problem of exclusively accessible designs

CHAPTER TWO: DISABILITY AND REHABILITATION

2.0 Introduction

The problem of disability has always been with mankind from the past and it does not seem to intend to disappear in the future. In fact, there are more chances of having an increase in the population of disabled folks. Much has been said about this issue as it concerns the world. This chapter therefore looks into the concept of disability and how it has been understood and tackled by the society. Suggestions by various authors have been discussed and causes and distributions of impairment types have been identified.

2.1. Definitions of Disability

As one moves from place to place, people have different opinions and definitions to the issue of disability. Those definitions are usually backed by the attitudes of the said people towards the disabled folk. It has become a common knowledge anyhow that disabled people do not usually enjoy being pitied, therefore, all such vocabulary that invites pity should not be used to describe their situation. They would love to be treated like any other person in the society and given equal rights with everybody which is not usually the case.

The BBC special focus on Africa Magazine(1998) has defined disability as "the disadvantage or restriction of activity resulting from an impairment and from society's failure to take account of that impairment"

Going by this definition, it means that once a person's impairment is taken into account by the environment, the state of disability is reduced to a bearable extent. The person has more

chances of participating in other activities that can be self-supportive thus reducing the individual's dependence on other people and the society at large, rather he or she becomes a contributor.

Handicap is a word that has been synonymously used with disabilities, most of the time, the difference in their meanings overlooked. In the chamber's dictionary, a Handicap is defined as "something that makes doing something difficult". It is seen as a disadvantage. This definition should be appeal to the reader because in every person's life at one moment or the other, we have possessed something that makes doing something else difficult. If only that disadvantage could be taken away or the difficulty diminished, then the thing to be done would be done. It does not render the disabled person utterly useless but it just informs the observer that he has a difficulty, which all people usually have.

A handicap can be differentiated from a disability in that, disability is that lack of vital organs in a person that leads to a handicap. The person is kept from doing what he could have been able to do otherwise because of his lack.

A person may be disabled yet not handicapped when it comes to some activities. An able-bodied man may however be handicapped by some peculiar circumstances. He is handicapped yet not disabled.

According to Olunloyo(1991) the word disability and handicap can be define architecturally.

Disability: A condition of physical impairment which prevents one from using a building or space fully or properly as a result of lack of suitable facilities.

Handicap: The cumulative result of the obstacles which the lack of suitable facilities in buildings interposes between an individual and his maximum functional level.

2.1.1. The Vocabulary of Disability.

In many languages, isolating and often insulting labels are attached to disabled people.

As earlier mentioned, some children are named after their impairments. Some disabled people are termed as deformed or abnormal. Others see them as suffering from something, afflicted or a victim. Rather than being seen as individuals, they are termed as medical cases. Some words associated with disability are defined below:

Impairment: The loss or lack of a physical or mental function.

- Disabled people: people with sensory, intellectual, or physical impairments

Rehabilitation: To give rights or powers to someone

who had lost it. To train or accustom or disabled person to live a normal life.(chambers dictionary)

- Habilitation: This word means to enable (Oluuloyo. 1991)
- Segregation: Separating disabled people from the society.
- Institutionalization: Putting someone who needs special attention in an established place designed to cater for such a person.

The few terms mentioned above have generated various controversies between people of different opinions concerning their meanings and how practicable they are as it concerns solving the problems of disability in the society. These definitions are adopted in this text as the need for the use arises except when otherwise stated.

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2.2.Classifications of Disabilities

As it has been mentioned earlier, disability has to do with the loss or lack of function of a particular organ in a person's body. This forms the basis of classification shown here:

- The visual disability: Sight or vision impairment it may means partial or total blindness.
- Auditory disability: Hearing impairment. This may means partial or total deafness.
- Speech disability: Speech impairments include total dumbness or stammering.
- Manipulatory disability: The upper limb impairment means the loss of the use of hands and arms.
- Locomotory disability: Lower limb impairment. The use of the legs have been lost. Their major problem is movement.
- Mental disability: This includes the mentally retarded, and people with mental health difficulties

-

2.2.1 Global Distribution of Impairments

All around the world, impairment types are distributed over the disabled population according to the pie chart below in fig.1

From the chart, the largest population of the disabled all over the world is the mobility(locomotory) impaired. This is followed by the mental disability type. Hearing impairments take 14% followed by the class of others that are not common it may be due to poor health or temporary disabilities. Epilepsy is another class that is sparsely distributed all over the

world.

Since the scope of this project includes only two of the classes mentioned above - the visual disability and the locomotory disability, further classifications on these are discussed. This classification is done according to the aids the individuals use to compensate their disabilities.

2.2.2 Classes of Visually Impaired People.

- Those who use their senses of touch and hearing to perceive their environment and communicate with others. These individuals are totally blind.
- There is the class of those who use guides like a cane or a guide dog to facilitate way finding.
- There is the class of those who are not totally blind thus still distinguish the environment when sharp colour contrasts, large prints, properly lit spaces and non-glaring lights are used in the environment.

2.2.3. Classes of locomotory impaired people.

This classification is done based on the individuals ability to move and the aids used while doing so.

- People who walk with difficulty but without using aids.
- People who use aids such as crutches, canes, walkers.
- People who use the aids attached to their bodies such as braces, artificial limbs, orthopedic shoes, etc.
- People confined to wheelchairs

The needs of the different classes above usually have to do with mobility but differ slightly. Some are able to move but unsteadily on their feet while some lack coordination. Some usually do not have use of one or two of their arms and hands while walking because of the aids they use. Users of artificial limbs or braces cannot bend their lower limbs thus have to walk in a

stiff manner.

2.2.4 Causes of Disability.

There are various causes of disabilities:

a) War, Violence and Accidents: All over the world especially in places where war or catastrophes have occurred, the greater population of survivors are left disabled in one way or the other. Natural disasters such as earthquakes, volcano eruptions, landslides etc, are part of the various causes of disability. For example in Angola and Mozambique alone, 95,000 people have been disabled by landmines (BBC magazine report on disability in Africa, 1998)

b) Malnutrition: This is said to be the cause of disability for about 10 million people all over the world. Iodine and vitamin A deficiencies lead to disabilities.

c) Infectious diseases: These include poliomyelitis, bone tuberculosis, scarlet fever, measles. The cause a range of disabilities such as blindness, deafness, paralysis of the legs etc.

d) Non-infectious diseases: These kinds of diseases are usually triggered off by poverty, bad sanitation, harmful traditional practices etc. These lead to disabilities.

e) Congenital conditions: These are conditions that are present with a person right from birth. It may be caused by poor birthing methods or lack of care and malnutrition of the mother during pregnancy. The child may be born deaf.

f) Alcohol and drugs(narcotics) when abused usually lead to a state of mental disability or retardation.

g) Other causes: This may include aging or temporary illness that cause temporary

disabilities.

These causes are distributed globally as indicated in the chart below, showing the percentage causes of impairments over the general.(Fig.2.2)

The congenital, non-infectious diseases and malnutrition are the highest causes of disabilities. Ironically, infectious diseases do not cause disabilities as much as the non-infectious ones. i.e. disabilities are more caused by individuals' carelessness. Accidents, trauma, war take 15.6% of the global distribution of causes.

2.3 THE PLIGHT OF THE DISABLED IN THE SOCIETY

Disabled people face many disadvantages in their lives because of the way the society operates. The disabled folks are less likely to get a decent education, find employment and have a family support than their non-disabled counterparts. They are not considered when it comes to political posts and if considered, they are not likely to win because most people are not confident about them. They are somehow excluded from normal life in the society by the following factors:

2.3.1 Negative Attitudes

Tribal and religious superstitions strongly influenced the way disabled people were treated in the past and even presently. This is most common in African communities. A disabled child in the family is sometimes regarded as a punishment from the "gods" for the sins of the ancestors. Pregnant women avoid seeing disabled people or albinos for fear of giving birth to an albino. Many men in the society are reluctant to marry disabled women, especially those with limb disabilities thinking that they won't be able to have children.

Disabled children and women are much more likely to suffer than their non-disabled counterparts. In schools, teachers are hesitant to teach the children who are disabled because they are not sure of the child's ability to understand like other students. This is usually the case when the teacher is not trained in special education.

2.3.2 Lack of enforced laws and policies related to disability.

Few countries especially in Africa have laws that uphold the rights of the disabled people. In Nigeria, voluntary organizations are numerous, which take care of the need of the disabled. The government has designated this task to the ministry of social welfare. However,

legislation has not been used in full swing to see to it that disabled people enjoy equal rights as others especially in places of employment.

2.3.3. The Environmental Barriers

Almost all aspects of the built and natural environment have been created for non-disabled people. The physical environment itself poses barriers in the way of people with disabilities. They are excluded from using buildings with steps or without provision for ramps, doors are sometimes too small for entering with wheelchairs, public transportation is difficult to use by people with a range of impairments etc.

2.3.4 Lack of Adequate Services and Information.

Aids available for disabled people are expensive and scarce. When rehabilitation centers are provided, the sponsorship of individuals becomes a problem because most of these people are usually unable to pay fees etc. Special education thus becomes expensive. Institutions built to cater for them often end up segregating them from their families and communities.

In the area of information, the basic problem is that the non-disabled are not informed about the problems their disabled counterparts face. Awareness about them and their rights is so poor that when amenities are being provided, their class of users are not remembered. Information about their rights need to be given to the whole society.

These are some of the problem that have made majority of the disabled population to take to the streets and ask for alms for survival.

It has also been observed, that the majority of disabled people come from homes that are down the financial ladder, that is, their financial status is not usually able to cope with the costs

of acquiring a formal, special education for the child. This leads to destitution in the near future for the child who has to depend daily on sympathy of others for survival.

This project therefore seeks to provide an institution that can be attended by the citizens in this category. The system of education is informal and participants on admission are under sponsorship of the government or in cases where it is possible, a student may be privately sponsored.

2.4 Rehabilitation

Whenever the word rehabilitation comes up, it is an indication that a disability is nearby. Some people see rehabilitation as the solution to various social problems such as drug addition, insanity, and reformation of delinquents. It is therefore important to know the meaning of the word to foster its effective and practical use.

As stated by Olunloyo(1991), "Amson-Yevi(1981) defines rehabilitation as 'the process in which the remaining physical and mental capabilities are utilized and developed to their highest efficiency to adjust them to the demand of the society'"

The oxford dictionary defines it as "a means of restoration by formal act or declaration to former privileges, ranks or possession". The later definition seems to emphasize a restoration of something that was lost and it seems to be in abstract and not physical terms. What if there was never a time when the individual did have those things that are to be restored. An example is when a person is born blind, what is to be restored then?

The former definition is somewhat agreeable, except the fact that other abilities that seem to be lost should not be totally ignored while developing the "remaining" ones. It is amazing to know that seeing men may not perceive just with a touch or sound as silent as a breath. This

indicates that when considering development or rehabilitation for a blind man, things that have to do with sight should not be left out. They may be able to perceive them without their eyes. An example is an environment for the blind. The beauty of the environment may be communicated to them by other means or even through other individuals who can see well without uttering a word.

Another word that has been used by opinionated people is "habilitation". Habilitation is a word that means "to enable" (Olunloyo 1991). This tends to encourage self development of the individuals involved. Thus, under this heading, a habilitation program would provide facilities for the disabled to enable them do what they would be unable to do otherwise.

It is possible to marry these two concepts still under the word rehabilitation. The effect will be seen in the practical aspect that is, if the facilities provided help to "enable" the disabled person or not.

There are certain problems identified with rehabilitation programs, especially in Nigeria. Some of them are listed below:

- it is usually seen as expensive.
- it is a standardized program with a set curriculum.
- rehabilitees are not included in the decision making concerning issues affecting them.
- the quality of the programs are low
- there is little or no involvement of the disabled person.
- there is a scarcity of dedicated and qualified personnel.

It is true that a program to meet the needs of the disabled is expensive because it involves the provision of special schools and residential institutions that ends up serving few people. This

is often compounded by the fact that the rehabilitees themselves are not willing or rather are handicapped when it comes to the issue of paying school fees. The training therefore has to be sponsored by the initiators of the program to avoid its failure.

This should however not pose a problem. The government of the state and the local governments can allocate part of their budgets for these services and after the training provide employment for the trained individuals in the form of cottage industries. In this way, government can raise revenue to replace that spent for the sponsorship. The community will also be served as they patronize the products.

There should be a degree of freedom in the composition of rehabilitation centers so as to make provision for expansion and creativity in the activities taking place there. The rehabilitees should be incorporated into the decision making bodies and in fact, a good number of disabled individuals should be employed in there so as to be able to make decisions based on their understanding of the needs of the students. Also, the families of the rehabilitees should be involved in one way or the other. It is of uttermost importance to have staff who are dedicated and committed. They are required to be trained on special education and qualified to handle the problems or challenges that may come their way as they go about their jobs. This includes all administrative, academic and auxiliary staff of such centers.

2.5 Types of Rehabilitation

Various types of rehabilitation centers arise as a result of attempts to solve the problems of disability as encountered in various environments and surrounding circumstances. The common types are discussed below:

a) Community Based Rehabilitation: This system uses pecialist workers to support disabled people and their families where they live. These projects can be economical and effective when properly planned. Skills of interest to the rehabilitees are imparted by the special worker to at least one to two or three within the same community. In this method, the disabled person is encouraged, enthusiastic and begins to contribute to the society without being segregated. The cost of inclusion is also low.

b) Hospital Rehabilitation: This is like a transition from hospital to home. It is more of a therapeutic institution with no vocational facilities.

c) Home Rehabilitation: In this system, the rehabilitee and the special workers live in the same place as a "family". A group of twelve people who are not biologically related live together. Vocational facilities are not provided thus it is only suitable for rehabilitees with jobs. This system is expensive.

d) Institutional Rehabilitation: This form of rehabilitation provides residential accommodation in dormitory style. There is little privacy. It is more of a school, home or a place specially provided for the rehabilitees. There is a possibility of having a hospital and institutional combination.

e) Sheltered Workshops: This is a situation where some vocational activities are provided for people who are disabled. There are no therapeutic or residential facilities within the center. It is more like a day center.

The system to be adopted in the proposed center is the vocational rehabilitation method. Accommodation will be provided for students in a hostel form with attempts made for privacy.

3.0 Introduction.

4.0

The fact that this thesis proposal is a crafts center makes it important to examine some concepts concerning crafts. The word must be defined and various types that are practicable within the Nigerian society analyzed. The types of crafts that can be learnt by disabled people of the category which this project concerns (the visually and the locomotory impaired) - have been analyzed. The equipment and processes involved in each type of crafts have been examined.

3.1 What is a Craft?

Crafts, according to the Encyclopedia Britannica, is the occupation of making by hands, useable products graced with visual appeal. Handicraft is defined as a craft that is done using only the hands and no machines. (chambers dictionary) Crafts include a broad range of activities that require skills and equipment. Examples are needlework, lace making, weaving, printing on textile, basketry, pottery, metal work, jewelry, leather work, wood work, glass works etc.

Crafts are grouped into two broad categories:

1) Handicrafts which is already defined above

2) Machine crafts: These are produced with the aid of machines. This is to increase the speed of production e.g. sewing machines, potter's wheels etc.

3.2 Crafts and Industry.

Industry can be defined as any branch of trade or manufacture.(chambers dictionary). It involves production of goods in large quantities with limited concern for quality. The basic aim is to achieve a moderate acceptable quality but large collective output rather than individual qualitative output. This is what differentiates it mainly from crafts. It has been observed anyhow that crafts are tending towards industry or at least small-scale industry in order to satisfy growing demands for products (Kudu A. 1993). This can be made possible by the increasing trend in which machines are being used to aid crafts.

Crafts will however always remain crafts and may not be mass-produced past the cottage industry stage(small scale) because of the degree of mechanization and mass production involved in industries. Crafts usually produce the models used as moulds in the industries for mass production therefore complementing it. Crafts also help an individual retain his/her originality.

3.3 Types of Crafts and Techniques.

This section assesses all the principal Nigerian crafts and other contemporary or modern crafts. The traditional crafts are those that have been handed down from past generations. They lack the use of machines because of the lack of it in those periods but several tools were employed in the crafts. Various crafts are discussed in the following sections.

There are several types of crafts but those that have the likelihood of been practicable by the visually and locomotory impaired are examined here. Some of them are listed below:

- Pottery
- Calabash making and decorations
- Leather works

- Mat weaving, hats and fans, basket(straw materials)
- Carpentry
- Cane works - seats, tables etc.
- Textile works which include.
    a) Sewing
    b) Dyeing of cloth
    c) Embroidery
    d) Printing and decorations
    e) Lace making
    f) Knitting
    g) Needlework

3.4 Pottery

This can be defined as the art of manipulating clay to produce items for utility and aesthetic purposes. Pottery can be done in the traditional way or by using the modern technique of production. This craft is common in Kano state thus it may have a good market.

3.4.1 Raw Materials

Clay is the major raw material because it is the very medium that is manipulated and processed to get the end product. This material exists in abundance in certain parts of Nigeria like Kaduna state but predominantly in Niger state. There are various types used which includes; White clay (china clay), the kaolin clay, Wushishi clay. Glazing materials include feldspar, wood

and rice husk ash, for burning in the kiln.

3.4.2 Equipment

- The kiln for firing and glazing
- The potters wheel
- Bowls
- Polythene sheets for tables
- Machines
- Cutting knives and spatulas
- Trowels
- Damp cupboards(for unfinished works)
- Buckets
- Sinks
- Good water supply

3.4.3 Processes

(1) (2) **(3)** (4) (5)

Storage Treatment (Production) Drying Glazing

(6)

Firing Moulding

1) Storage: The clay dug from the reserve or imported from another area needs to be stored in a damp state. It must be stored in hollows or wrapped with polythene

sheets to prevent evaporation of the water thus maintaining its dampness.

2) Treatment: The clay that is freshly dug up is lumped and contains impurities. These have to be removed before it can be used for pottery. The treatment process includes soaking the clay in pots, pits, or troughs for about two days. This is followed by sieving to remove unwanted particles. The sieved clay is spread on brick tables to reduce its water content. The clay at this stage can be stored in the pits to preserve the moisture and then kneaded as desired. The kneading is done to remove air from the clay. The clay is ready for use when it becomes plastic and malleable after kneading.

3) Moulding: This is done in three ways:

   a) Shaping: This is the traditional method where pots are made by coiling ropes of clay and pressing it into the desired shape. The potter places a lump of clay on a stone, pulls the "walls" in a diagonal direction while she walks backwards around the pot. The pot is built this way until it is two-third complete, then thick coils of clay are added and pulled upwards. The pot begins to take a spherical shape at this point. The potter builds the shoulder and neck and completes the upper part of the pot while the bottom remains untouched. The unfinished work is dried slowly in the sun after which the bottom is completed. This is done without any tool at all except a stone.

   b) Throwing: This is done using the potter's wheel. It is a modern

manual means or through electrical power. The moulding process involves making a hole in a ball of clay placed at the center of the rotating wheel. The clay is drawn up with the hands and shaped as desired.

c) Moulding: This method involves preliminary modelling of the shape of the desired object into which the clay is now pressed.

4) Firing (Drying)

This is done in two steps:

- The first step is firing to dry the fresh products.

  This needs low temperature to avoid cracking and it is done in a regulated kiln. In the traditional method, this first step of firing is done in the sun by stacking the products.

- The second step is called the glaze firing.

  After the first firing described above, the glazing materials are applied on the clay products and then arranged in the kiln for the second firing. This firing requires a higher temperature than the first. After firing, the finished products are stored or displayed for sale on shelves.

3.4.4 Products:

This process can arrive at a wide variety of ceramic products ranging from the utilities like cups, plates, pots, flower vases, decorative items in shapes of animals or plant. etc.

3.4.5 Pottery & Disability

It is necessary to determine from the analysis of the process of pottery if it is practicable for people with visual or limb disabilities. Since the visually impaired still have control of their legs and hands, they are well suited for this craft because the manual type of the potters wheel requires the use of the legs for rotating the wheel while two hands are used to form the desired object.

The people with limb disabilities may also take part here when moulds are used instead of the wheel. The other alternative is to use the electrically operated wheel.

The kneading, glazing, drying and firing does not require any activity that the disabled cannot do. Only the visually impaired need to take caution in the use of the kiln or in fact be removed totally from the firing process or anything that has to do with the kiln. They will perform excellently at the throwing process.

3.5 Calabash Making and Decoration.

This involves harvesting gourds, preparing it for use and making engravings, carvings etc on them. They can serve as utility products or as aesthetic materials.

3.5.1 Raw Materials

The main medium is the gourd. It grows well in the country. These are harvested and prepared for use.

3.5.2 Tools.

There are several tools including knives, sickle-like tool, for removing the internal lining, sand paper for polishing and saw for dividing the gourds.

3.5.3. Process.

A fully-grown gourd is picked and soaked in water until the content gets rotten. The gourd is opened and the contents in it removed. The calabash is cleaned thoroughly and left to sun-dry. After drying, it can be carved, painted or engraved with the aforementioned pools.

Another method of processing is to pick the gourd and fill it with water after the top is cut off. It helps the content to rot which in turn eases the cleaning.

3.5.4 Calabash Making & Disability.

Analysis of the process of calabash making and decoration shows that the visually impaired and the people with limb disabilities will easily cope with the demands of calabash decoration when supplied with the right material and put in the appropriate environment.

3.6 Leather Work.

This involves the use of animal hides and skin processed into leather by tanning, for various objects and article. In this case, already tanned leather will be imported for use in the craft center.

3.6.1 Raw Material.

The basic material is hide and skin. This is largely available in Kano and with the

presence of tanneries, already processed hide and skin in the form of leather will be much available. Other substances like chemicals for spraying and polishing of finished products will be required.

3.6.2 Tools/Equipment

The equipment needed include a sewing machine for leather. needles, threads and other small tools that will be used in leather work.

3.6.3 Process/Products

The leather is cut, shaped and sewn into what the desired product is. This includes bags, shoes, wallets, boxes, etc. The finished product is painted, sprayed or polished as desired.

3.6.4 Leatherwork and Disability.

Since the already tanned hide and skin is the raw material in this case, it will be easy to handle for people with limb disabilities. They will be able to manipulate the leather into various items with their hands, provided the suitable working surfaces are provided. The stamina required for this work is not excessive thus it is quite suitable and practicable for them.

3.7 Raffia and Straw Products.

This is the craft which involves basket, mat, hat and fan weaving. All these items are made from the same raw materials. Baskets are good containers that are used for storage of household things, shopping, transportation of some food items etc. Fans, hats and mats are made in various colours and sizes. Mats are used both at home and in farms. They are used on both

floors and as sun-shades. Fans are used to cause air movement.

3.7.1 Raw Materials

Raffia and straw are got from plants. These can be purchased at cheap prices because of its availability in the environment. They may be purchased in already dyed form in various colours or the dying process carried out.

3.7.2 Process

The process is basically a weaving process for any of these items. Techniques may differ with different individuals. While baskets are made from stiffer types of reed, the mats, fans and hats are made from more flexible ones from the branches of the raffia palm.

3.7.3 Straw craft and Disability

The analysis of the process of producing mats, hats, fans and baskets from straw shows that the craft is practicable for people with both limb and visual disabilities. The work does not require excessive energy thus is suitable to the disabled.

3.8 Cane Works.

The craft of cane work is used to produce such items as furniture. There are light furniture used for relaxation either in gardens and other parts of the home. They are also used for aesthetic purposes because these items are of pleasant appearances after they have been finished.

3.8.1 Raw Materials

The main material here is the Bamboo plant and wood. These two are used together to get the desired products. The main process is waving accompanied by some nailing or gluing of the materials together. The stiffer types of cane are used to give the furniture some amount of rigidity.

3.8.2 Cane craft and Disability.

The craft is practicable by people with disability in the limbs or even in the eyes because of the ease with which it can be handled with the hands.

3.9 Carpentry.

The art of carpentry involves measuring, cutting or sawing, nailing and gluing of wood together to form a variety of items.

3.9.1 Raw Materials/Equipment.

Wood being the medium is the basic raw material. Equipment such as hammer, nails, glue, polish, etc. are used to shape and give the wood good appearance. Items such as stools, mortars, drums apart from small household furniture can be produced from wood.

3.9.2 Carpentry and Disability.

The craft is more suitable for people with limb disabilities than those with visual impairments because of the visual attention that is required in the process. People with limb

disabilities have been known to use carpentry to support other people by making walking aids from the craft.

3.10 Textile Works

There is a vast variety of techniques and crafts in the making of textile. The choice of which type to use depends on the desired end product. There is the traditional cloth weaving which has been passed down from past generations. The cloths are woven by hand using a loom. Other types include knitting, dying, embroidery and needlework, sewing, lace making etc.

3.10.1. Knitting

This is a cloth manufacturing process in which needles are used to form a series of interlocking loops from a yarn. This could be done by hand or by machine. This craft is a modern or contemporary craft that has been used to produce some items of apparel such as sweaters. Knit goods for many years still take only a small part of the apparel market.

3.10.2 Embroidery/Needlework.

This is the art of decorating fabric with needle and thread. This can be hand made or machine made. This art is very common all over Nigeria and it is a source of livelihood for many because it is a craft that is patronized widely among the people in the society. The process involves sketching the design of the embroidery pattern on a piece of cardboard then making a choice of colour of threads to achieve a fascinating and attractive colour combination. The design is now followed on the fabric and on caps as the case may be.

3.10.3 CLOTH DYEING

This is the art of giving colour to fabric using certain pigmental chemicals. This art is common in Kano state having being passed down from the older generation. This is another art that is well patronized by the society because of the attractive designs that are displayed on them. It is a common art with the Yorubas, especially in Abeokuta, Ogun state. The art can be promoted by using chemicals that will make the print more durable than the ones obtainable.

The process involves mixing the chemical pigments and then tying the cloth or using the Batik method as desired to achieve certain patterns. The fabric is now soaked in the dye for a certain stipulated period and then dried. The basic equipment are chemicals, bowls for soaking, lines for drying, candles or wax, twine for tying etc.

3.10.4 Sewing

This is the art of cutting and sewing together pieces of fabric to make a pattern or design on an apparel. This craft is learned by all classes of people and it has been modernized and called fashion design. It requires a degree of creativity to produce such appealing designs for people's clothing.

The basic equipment required are the sewing machines and other machines that are used to achieve the other fittings that accompany a garment. Thread is another major material.

3.10.5 Textile work and Disability

Among all the various types of textile work discussed in the preceding sections, there is none that cannot be practiced by the people with limbs disabilities or by the visually impaired.

3.11 Summary

This chapter has been able to review some of the common Nigerian crafts both traditional and contemporary. Their relationship to the proposed craft center for the disabled has been discussed in the sections analyzing their practicability by people with disabilities. This was done by observing the processes involved and determining if it was possible for disabled people to go through these processes.

CHAPTER FOUR :DESIGNING FOR THE DISABLED

4.0 Introduction

All forms of life must interact with their environment whether interior or exterior. The surroundings of a man either disabled or able-bodied normally affect every aspect of his life. There are special factors to be considered when designing for the disabled individual. These factors do not arise because such people are different but because their physical disability poses them with problems that tend to hinder interaction with certain aspects of the environment. When talking about environment, there is the man-made environment and the natural environment. Also, considerations should be given to whether a space is on the interior or exterior of the building. The external environment can be manipulated to stimulate the users especially people with disabilities. They may be encouraged or discouraged as the case may be in their attempt to participate in some activities. The environment should be inductive i.e. influencing the users to perform the purposes a space was designed for.

When it comes to the issue of the built environment, there are a whole lot of detailed standards existing to guide the designer in the provision of spaces and elements facilitating proper use of a building. Some of these standards just need to be modified to accommodate the needs of a disabled user depending on the need that is being met. Although, some designers believe that different standards should exist for people with different disabilities, it has been proved that a design that has considered and accommodated the needs of a wide variety of users will be adequate to cater for any type of disability. The idea here is to stretch the design as much as possible to cater for all needs. Anthropometrics is usually a standard used to guide the designer in measuring out spaces. The Anthropometrics of disabled people differs a little from that of able-bodied people thus it should serve as a guide when designing.

Architect Pine.(1971) decided to draft a performance checklist for a designer who intends to take people with disabilities into consideration. This was because he felt that some form of comprehensive standard is needed to allow designers relate their work to actual human conditions. Among the checklist are the following questions:

- Are all the spaces accessible by everyone?
- Is there convenient communication from inside to outside?(check external circulation)

  Has the need to reach up, bend down or push been reduced?
- Is any part of the design potentially dangerous?
- Is there need for much maintenance?
- Has the need for rapid movement been avoided?
- Is special design as inconspicuous as possible?
- Can things be operated by one hand? etc.
- for the disabled, the various aspects of design and the various parts of a building In this chapter dealing with designing facility was discussed and useful recommendations assessed as it concerns the uniqueness of the design requirements.

4.1 The Outdoor Environment

This can be defined in this text to mean the spaces that are on the exterior of a building. It is important to have the outdoor spaces functional as much as the interiors are. The organization of the outdoor environment usually indicates the kind of care taken to give a befitting interior. It is the first impression an observer gets about a building so it must be designed with much thought given to its functionality and attractiveness. The outdoor environment usually includes the external appearance of the building, the man-made and natural features on the outside, the

vegetation, sky cover, ground features etc. In the past, much thought was not given to this aspect of architecture but awareness about landscaping, gardening and other forms of outdoor relaxation have made it necessary to design the exterior of buildings especially in the Nigerian setting.

4.1.1: The Natural Outdoor Environment

This comprises the naturally existing parts of the outdoor environment such as the vegetation, the ground cover e.g. sand types, the sky cower characteristics, the small animals that inhabit the space such as birds, lizards etc., the scenic views that ought to be captured e.g. streams and other water bodies, the sounds that are pleasant to the ears in the environment such as birds and other insects sounds, the rustling of leaves in the wind etc. The natural outdoor environment is actually very rich when properly harnessed. For every class of people it is desirable. The natural environment however usually posses problems of access to the category of disabled people who are mobility impaired. The ground surface is rough and cannot be easily maneuvered by the wheelchair. Stones, wood and other objects make the ground rough thus there is a limit to movement within such an environment. The only remedy is usually to provide man-made solutions that can be incorporated into the natural environment without changing the general outlook of the scene.

4.1.2 The Man-made Outdoor Environment

The most common feature of a man-made outdoor environment is the walkway. This is used to provide a comfortable footpath for the pedestrian in the environment. It is also an element of access for the users either disabled or not.

A walkway for the wheelchair user should be smooth and non- slippery. It should be used to access all nooks and corners of an outdoor environment. Other features include the drinking

fountains. These are used to provide drinking water for users. The height should be considered and lowered for the user who is confined to a wheelchair. There should be ample space for the wheelchair to maneuver around it and knee and toe space provided while drinking from a chair.

Other man-made elements in the outdoor environment are all the landscaping elements such as flower beds, curbs to demarcate roads from walkways. Curb ramps should be provided to facilitate smooth transition for wheelchair users from road surface to walkway.

4.2 :Landscaping

Landscape can be defined as the design of all the space outside buildings, hard and soft, urban and rural, public and private (Sarivens S. and Moore C. 1979) According to Fairbrother(1974), space controls us directly and emotionally. We exist in its terms that is , we may be free or constrained, reassured or ominous, intimate or public depending on the way the space affects us. Outdoor spaces may be designed to be open spaces or enclosed spaces. These are usually determined by the proportion and the relationships of the boundaries for example, a road with trees planted along both sides looks enclosed because of the walls on each side formed by the trees and the roof formed by the sky cover above. Open spaces enhance a sense of freedom while enclosed spaces tend to suggest solitude and quietness.

As much as possible, there is the need to resist tampering with the natural environment on the site. The designed landscape should blend with the existing natural environment. there are basic elements that make up a landscape. These are discussed below;

4.2.1 Topography

This talks about the shape of the land. It could be flat or undulating. It could feature mounds, ditches, earthworks and terraces. Land forms appropriate to those naturally found in the areas where the design is taking place should be used.

4.2.2. Vegetation

This refers to the nature of the plant cover. This includes trees, flowers, shrubs etc. Hedges got from shrubs are used as walls and demarcate spaces in an outdoor environment. Trees are decorative apart from achieving a vertical outlook. The very common green grass is used to achieve a carpet like ground cover. It is important to also be familiar with the plants that flourish in a particular environment and to familiarize with the growth characteristics of various species of plants before specifying it for a landscape design. This is to enable the designer to specify and plant those plants that will give the desired result.

4.2.3: Water

This is a major landscape element. It could be in the form of pools, streams, seas, ponds, rivers, canals or lakes etc. The view open to a water body often gives a desirable effect and many designers even design openings in the building to open towards the water body.

4.2.4 Man-made Elements

4.4: Aesthetics

This can be defined as the appreciation of beauty(chambers dictionary). It is the appreciation of something that appeals to the eye. It gives pleasure to the mind. In every human being lies present the ability to enjoy beauty. It is a natural gift in every man thus it is important to design an aesthetic environment when designing for the disabled. It is a mistake to think that beauty can only be appreciated when a man can see. This has been affirmed by the fact that some gifted blind people have produced beautiful objects out of their crafts which often amazes those with no visual impairments at all. Eareckson J.(1987) has said that there is no need to avoid words like look or see when conversing with blind people. In fact, they use these words too. She went on to narrate a conversation she once had with a blind woman.;

Eareckson: "Hi, nice to see you"

Blind woman: "Nice to see you too"

Eareckson: "It's a beautiful morning, isn't it? Has anyone described the new to you yet?"

Blind woman: "Not actually. What's going on outside?"

Eareckson: "There's a row of oleanders (flowers) by the window and ... yes, I even see a few birds making a nest".

Blind woman: "Really!"

From that conversation, it is obvious that those with visual impairments desire to enjoy the environment and to have a mental picture of what obtains. Supposing the design is void of aesthetics, then they are left with nothing to enjoy. Aesthetic environments are also a positive stimuli on the disabled especially when in depressive moods. The colors, sights, vegetation etc can be a way of determining the moods of the users

There are no hard and fast rules in trying to express aesthetics and beauty. The designer is free to use his/her sense of creativity as beauty has been said to be in the eye of the beholder. This is to say that beauty is personal. However, there is a general guideline in which when an object possesses all these qualities, it can be universally accepted as beautiful. Such principles are enumerated below:

Rhythm, Balance, Hierarchy, symmetry, asymmetry, Axis, Reference or Datum, Scale, Proportion, Diversity etc.

Avenues for expressing aesthetic thoughts are landscaping, artistic decorations, wall murals and reliefs, sculptures, gardening, creative planning and attractive elevations.

4.5 Problems Encountered By Disabled People In The Outdoor Environment

This section deals with some of the difficulties encountered by disabled people in the built environment. These problems are not too bad in themselves, but because of disabilities they pose handicaps to the users. These common problems should be borne in mind when designing for the disabled. Some of these are discussed below as it relates to the scope of this thesis write up.

4.5.1 Obstacles on the ground:

These could be stones, mounds or any protruding object. They could cause hazards to people

With visual impairment while those on wheelchair are obstructed in their movement by them. In fact it could lead to an accident. Accessible routes void of obstacles should be provided, preferably walkways.

4.5.2 Uneven Paths

These could be natural grounds or walkways filled with holes, gutters, mounds etc. These are also as dangerous as paths with obstacles. Evenly graded ramps should be used to achieve changes in level on an uneven terrain. See fig 1a and 1b and 1c. Gutters should be covered with grating in the direction of the pedestrian travel.

4.5.3 Unsafe Pedestrian routes:

A pedestrian route, especially if disabled, becomes unsafe when it is interrupted by vehicular traffic. There is the risk of accidents and injury because of the danger. People with visual impairments may not be attentive to on-coming vehicles and careless driver can knock him down and run away. Walkways should be designed to avoid crossing vehicular path as much as possible.

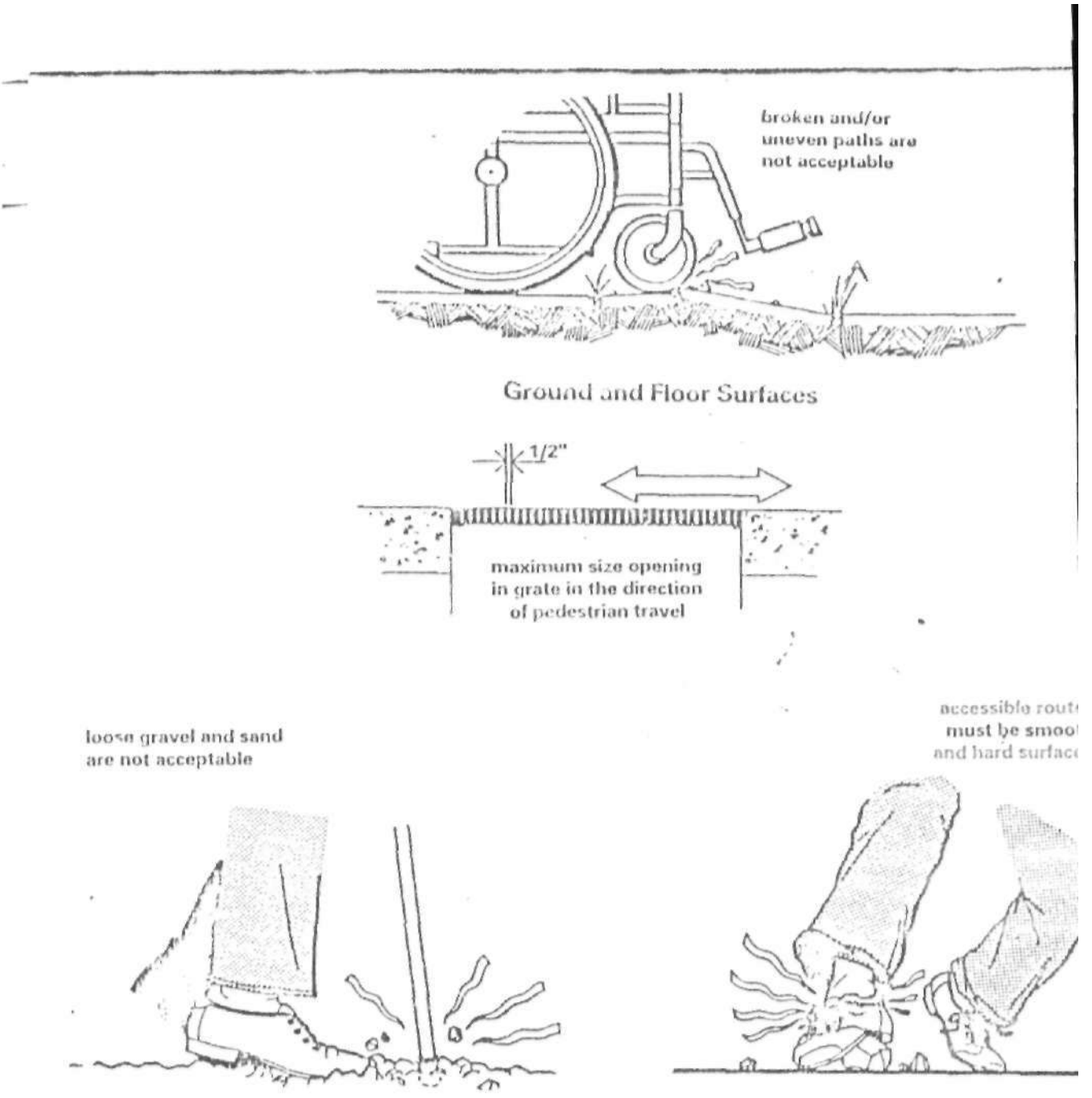


Fig.4.1 (a),(b),(c).(Source :UFAS Retrofit Guide 1993)

4.5.4 Protruding Objects:

This may be in the form of outward opening casement windows or other objects protruding in the path of a pedestrian. The visually impaired user is in danger here because the cane used for detection may not reach certain heights above which any object placed causes an accident. Overhanging signs or objects should not be lower than 2m from the ground. Protruding objects should be placed within wing walls which run from top to bottom of the room height thus will be detected by a cane used by the visually impaired. Any object above 675mm off the ground cannot be detected by a cane. This means cane detectable height is 675mm. Any protruding object above this height from the ground should not project beyond 100mm otherwise it becomes a potential hazard for the visually impaired.

4.5.5 Undefined Entrances:

Since the disabled man, confined to a wheelchair has less energy than the able bodied man, it becomes rather frustrating to roam around trying to find the entrance to a building. The entrance that is the major one, should be obvious to anyone approaching the building.

4.6 The Transition Environment

The transition environment in this context refers to that space within or outside building that is used for movement and within which very little time is spent. As the word indicates, it aids movement, from one place to another. This is the environment in which either vertical or horizontal circulation takes place. These spaces are very important especially for disabled people of the category which this project deals with. Any barrier in any of these spaces mean difficulty in accessibility or no accessibility at all. There are several parts of a building which fall into this category and they have been discussed below.;

4.6.1 Parking Spaces:

This is the space that provides accesses to sites and facilities for people using various modes of private and public transportation. The design of this environment should put safety as a first priority. Disabled people who use vehicles take longer time to exit or enter their vehicles especially when a lift or other assistance is required during the process. This makes it necessary to provide special spaces for parking and passenger loading for them. These special parking spaces are designated so that it may be reserved for people with such needs. They are also placed near the building because people with disabilities lack the stamina to travel long distances.

Signs are recommended to be mounted on the reserved parking spaces to prevent other vehicle operators from using the space. It is also necessary to provide aisles to allow the passenger come out of his/her car without getting into the flow of traffic either on the road or on the walkway. Where many parking spaces are provided, one access aisle may serve two spaces.

When the signage is mounted where people will walk beneath it, the bottom edge must be above 2.25m.

4.6.2 Curb Ramps.

These are elements provided to create a smooth transition between walkways and roadways. A curb ramp facilitates movement by wheelchair and eliminates t[illegible]ed for a pedestrian to climb a step. This element becomes a great convenience for those using baby strollers, trolleys, bicycles etc. when properly installed. The minimum width of the curb ramp is 900mm with a maximum slope of 1:12. The height of the curb is usually 150mm. (See Fig.4.4)

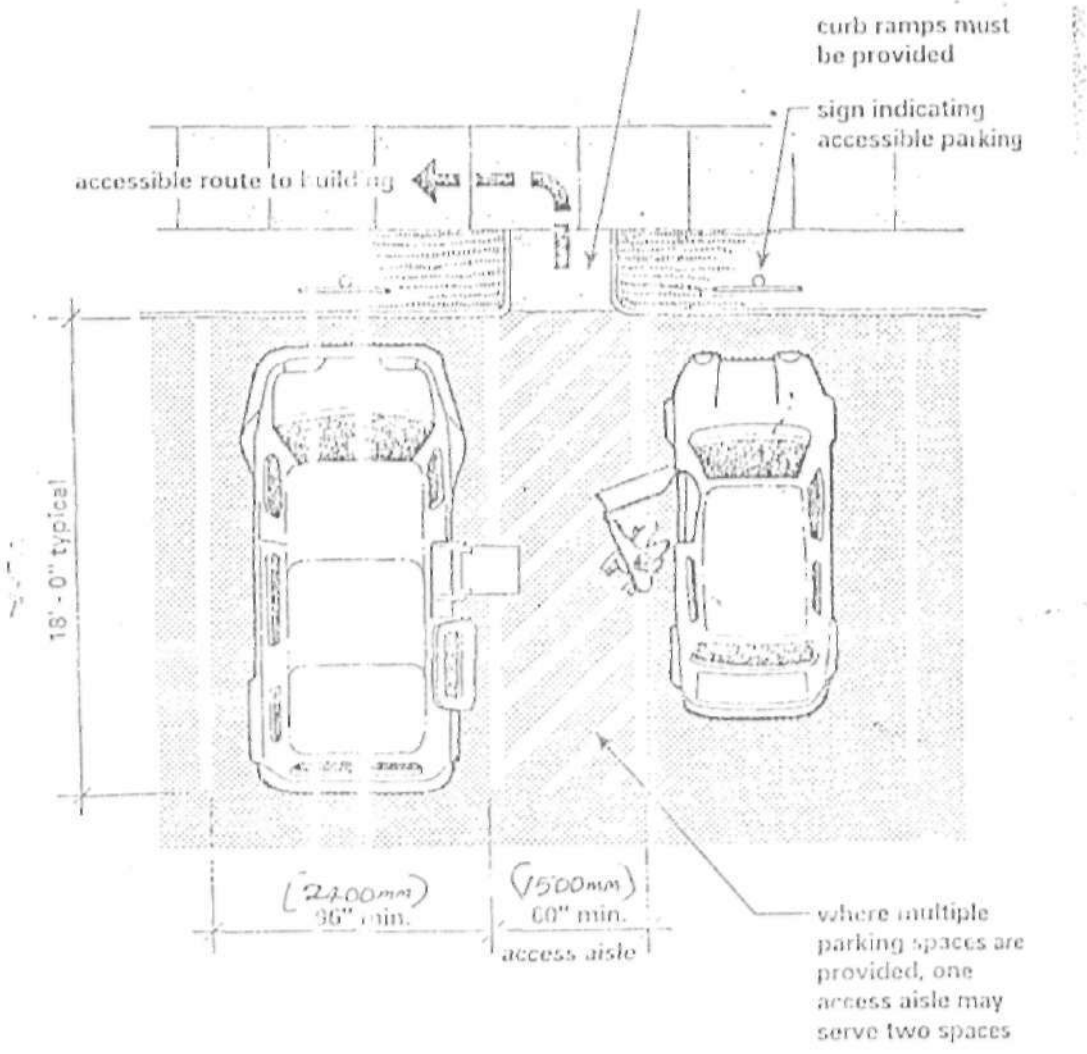
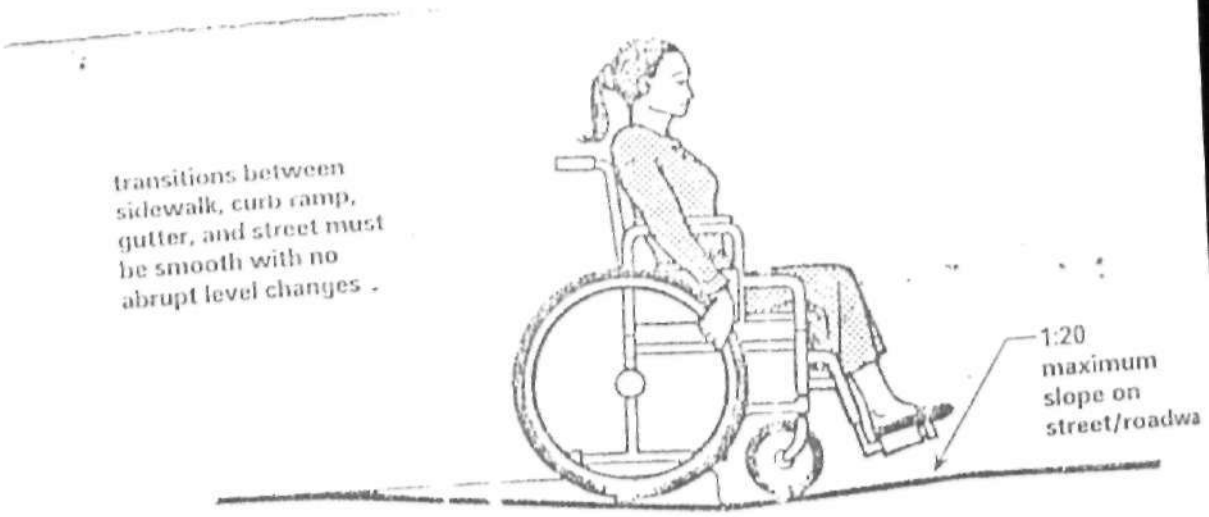


Fig. 4.3 :Accessible Parking Spaces



Smooth Transition Between Sidewalk and Street

Fig.4.4 :Curb Ramp

4.6.3 Accessible Route

This is a very critical element involved in the good design of any building. The goal of providing access to all element, or features in a building should be the focus of the initial planning stage in a facility and it is only through a route of travel, which meets the accessible route requirement that this can be achieved.

According to the UFAS Retrofit guide,(1993), an accessible route is a continuous unobstructed path connecting all elements and spaces of a building or facility. It is expected that such a route can be negotiated safely by anyone, including people with a wide range of disabilities. Interior accessible routes include corridors, floors, ramps, elevators, platform lifts, clear floor space at fixtures and elements. On the external parking access aisles, drop-off areas, curbs ramps, walkways, ramps and entrances form part of the accessible route. The basic design considerations in providing accessible routes are the height of overhanging objects which should not be lower than 2m while the other consideration is the width of the route which is 900mm minimum for one wheelchair user.

4 .6.4 Entrances:

This is the space that accommodates the activity of entering a building. It consists of the approach walk, the vertical access leading to the entrance platform, the platform itself, entrance lobby, if provided, the entry door(s) or gate(s) and all the ironmongery of the doors(s) or gate(s). Entrances are part of an accessible route and also should be connected by an accessible route to public transportation stops, parking lots and all accessible spaces within the building.

The most desirable features for an accessible entrances is a level path /walkway to the building.

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4.6.5 Stairs:

Many ambulatory people who walk with difficulty with or without the use of aids such as crutches, canes and braces, prefer the use of steps to ramps. When stairs are not suitably designed, they often result in falls and injury. A good design reduces the likelihood of accidents especially on steps and stairs which are used for emergency escape or egress.

According to the UFAS Retrofit guide(1993), it has been documented that most stair accidents occur during descent. The most dangerous are the tripping accidents which cause a person ascending to tumble backward or a person descending to fall forward.

The basic design considerations in designing stairs for accessibility are the tread, risers, nosing, handrails, lighting and surface texture of the steps.

Treads should not be less than 275mm wide but the 300mm width is most preferable. 150mm risers are generally preferred. Open risers are not permitted because of the proneness to catching the climbers foot. Risers are required to be sloped on the underside of the nosing having an angle not less than 60 from the horizontal. The underside of nosing are required to be rounded.

Another important consideration in the design of stairs are the hand rails which when properly installed improve the safe use of the stairs. Handrails should be installed at a height 750- 850mm above the nosing. About 37.5mm is needed between the hand rail and the wall and it should provide a continuous gripping surface.

Stairs that are in outdoor conditions should be slightly slopped to make a way for rainwater to flow away.

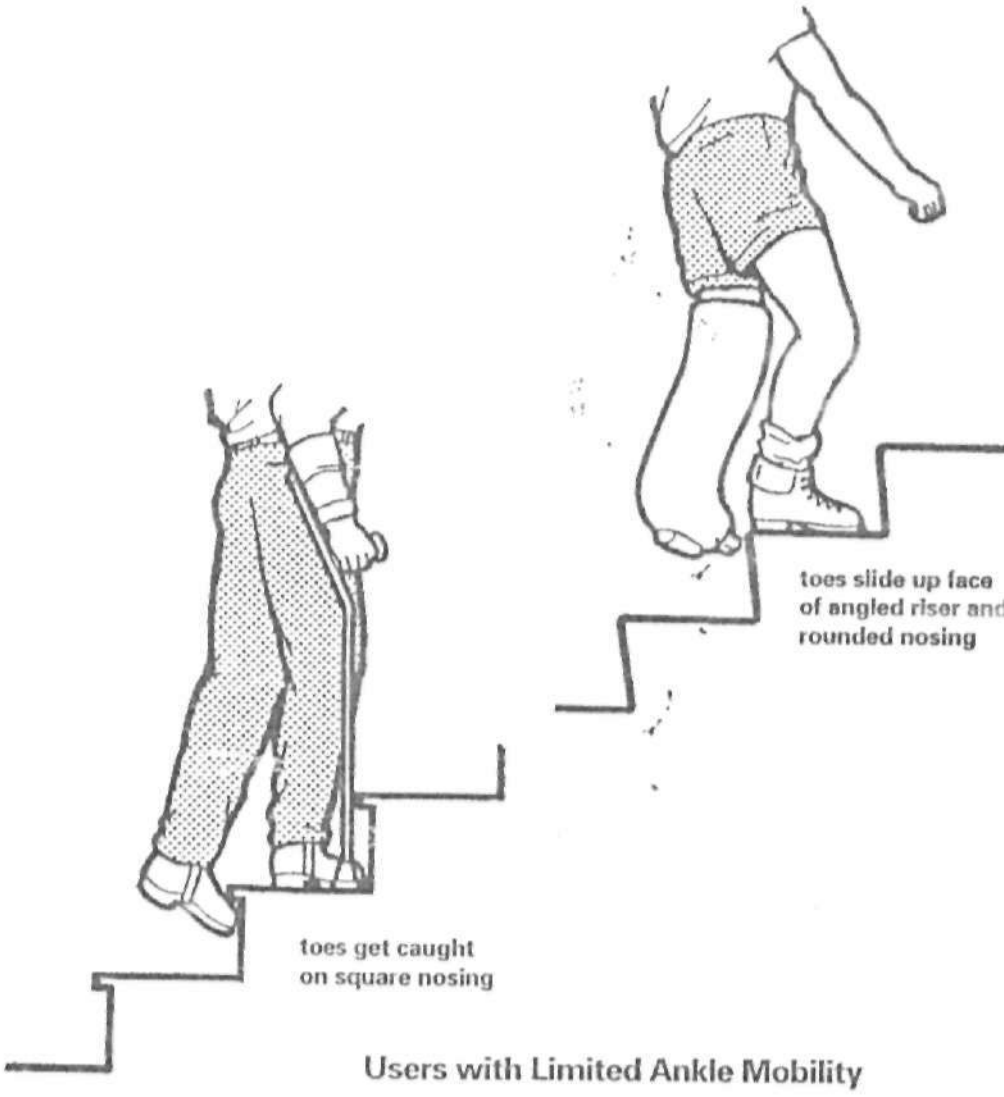


Fig 4.5: Acceptable Stair Design (source: UFAS Retrofit Guide)

4.6.6 Ramps

These are installed to accommodate the preferences and needs of a variety of users. It is a means of vertical access for wheelchairs and other wheeled vehicles which is not mechanical. It is necessary to provide level landings at the top and bottom of ramps. The floor covering of ramps should be textured for safe and easy maneuvering. Handrails should be provided on each side of the ramp. Although this element has been termed by some as an unfortunate necessity required for handicapped access, it can result in major improvements to the overall aesthetics and functional quality of the facility when properly used along with good landscaping.

The basic design consideration of ramps is the slope and rise. It is preferred that ramps should be as gentle as possible. Landings should be located, according to UFAS, a minimum of every 9-12m depending on the slope of the ramp. The landing should be as wide as the ramp and the length 1.5m.

Edge protection of the ramp is required to prevent people from slipping off the side of the ramp. Curbs, walls, railings, etc, can serve this purpose.

4.6.6 Egress And Safe Refuge

Egress and safety during an emergency are major concerns in every building. It becomes an amplified problem when in the event of an emergency, occupants are not able to evacuate without assistance. This is often the situation of disabled people. Basic design considerations when thinking of escape are discussed below:

a) Alarms: The purpose of an alarm in emergencies is to cause automatic notification of personnel, recapture of elevators, activation of special emergency lightning, automatic closing of fire doors, initiation of automatic fire suppression systems such as sprinklers, and a wide range of other commands installed in it. Alarms can be activated manually by an individual who becomes aware of the fire or automatically by heat or smoke detectors. Alarm boxes must be within reach of all users, it must be accessible and mounted on an exit route.

b) Accessible Route: This can be used as a means of egress during emergencies also. It should lead to an exit or a place of safe refuge, that is, a place where an occupant can stay till assistance comes. It is usually the place provided for those who cannot use escape stairs.

4.6.7 Elevators

This is a mechanical means of providing vertical circulation within multi-storey buildings. The forms of elevators provided should also cater for the people with physical disabilities. Some factors should be considered in providing elevators.

a) Location: This should be as close as possible to the entrance.

b) Elevator lobbies :Elevators should be located along an accessible route. On the lobbies, call buttons should be mounted about 1m above the floor.

c) Elevator Car: It is required that sufficient floor space within the car be provided to allow a person on a wheel chair to enter, maneuver within reach of the controls and exit from the car. The elevator doors can be center located or to the left or right side of the longer end of the car. The floor space specified is a minimum of 1200 x 1200mm with a door opening of minimum width of 900mm.

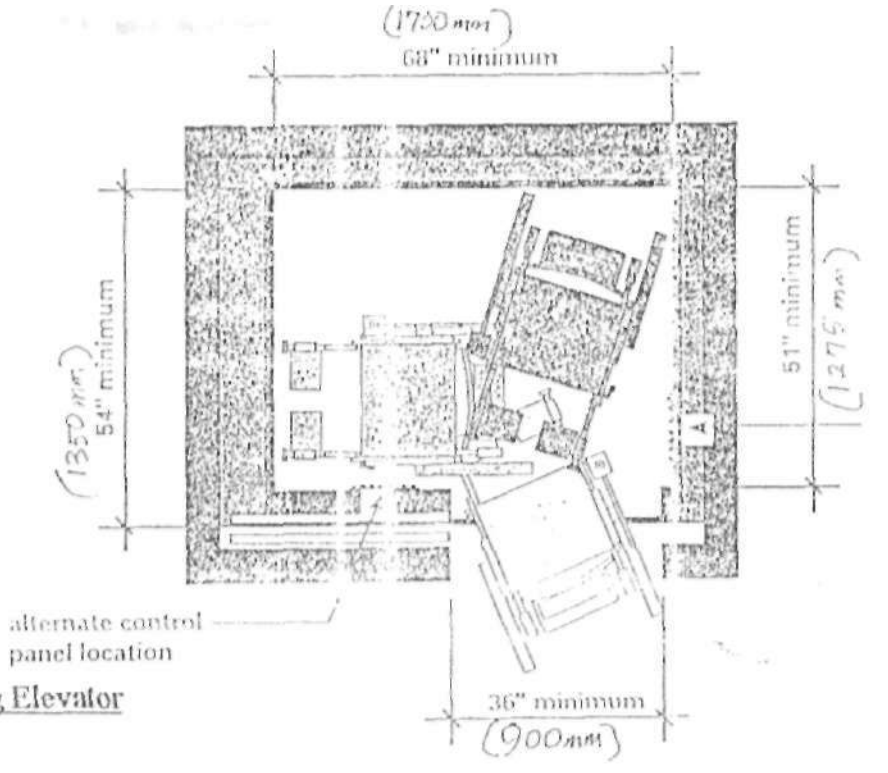


Fig 4.6 Side opening Elevator

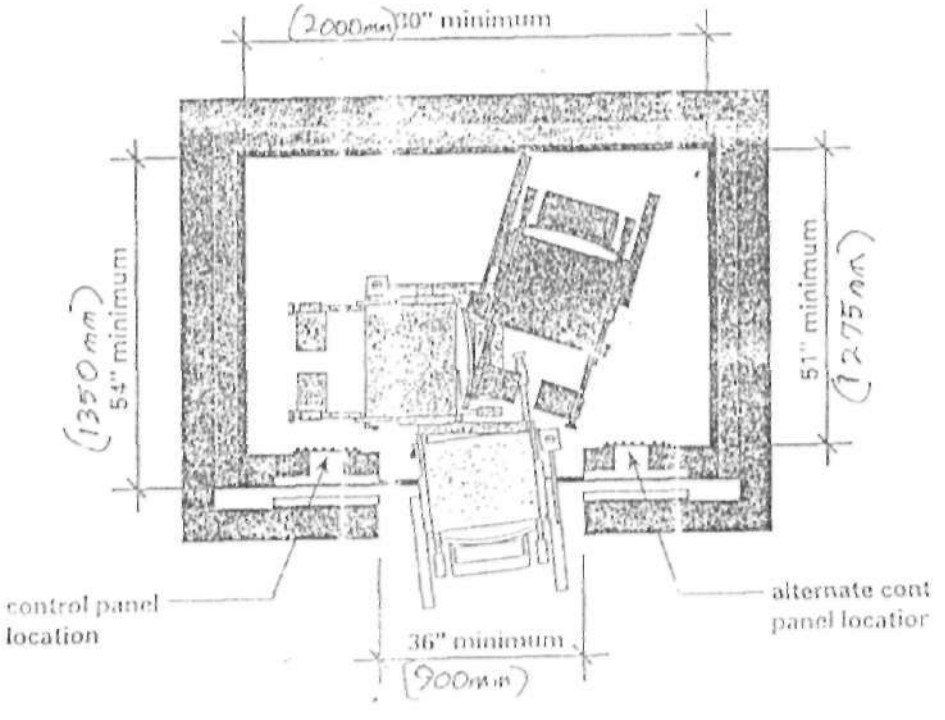


Fig4.7 :center opening elevator (source; UFAS Retrofit Guide)

4.6.9 Signs And Tactile Warnings.

Signs are used in most buildings to provide direction to and information about location of various services. A tactile warning is defined as a standardized surface texture applied to surfaces to warn visually impaired people of hazard areas. The distinct texture is achieved by knurling or with an epoxy grit. The distinctive texture should be uniform throughout the structure.

The items discussed under the heading of the transition environment are mainly for access and information about the various spaces and services provided within the facility. When these elements are not considered, there is a likelihood that the final environment arrived at will not be barrier free for the disabled user. The aim however is to provide an appropriate environment for all the variety of users of a facility.

4.7 The Indoor Environment

The indoor environment of a building contains the functional spaces and the functional elements that make the services provided in the facility successful. An element can be defined as an architectural or mechanical component of a building or space. such elements include doors, windows, toilets, lavatories, bath tubs, showers, sinks, storage/closets, telephones, working surfaces, seating surfaces, etc. There are certain design issues to be considered in the installment of these elements in order to facilitate their use and accessibility to disabled users.

4.7.1 Doors

In order to use a door successfully, one has to position oneself appropriately in relation to the door, manipulate the door to open it, pass through it and close it again. The location and type of the door affects these actions. There are designs considerations when designing a door especially for the disabled.

a) Clear width: The minimum clear width of a door to allow a wheelchair passage is 800-900mm.

b) Maneuvering Clearance: This is space to allow a wheelchair move around an object and operate it. It is essential to have space at the side of the door on the pull side. This allows people on wheelchairs, walkers or crutches to position themselves and their walking aids out of the path of the door while they open it. This also prevents them from being hit when the door is suddenly pushed open by somebody from the other side. A clear width of 600mm is preferable (UFAS)

c) Force required to open door: Many disabled people and young people do not usually have enough strength to open doors that require much strength to operate. This consideration should be taken when designing sliding doors especially.

d) Door Hardware: This refers to the ironmongery used. Since many disabled people have limited use of their hands, door handles and latches are required to be easy to operate. The shapes should be easy to use with one hand. Preferable examples are lever handles and large U-shaped pull and push bars. Round smooth knobs are generally not useable. Hardware for disabled users should not be mounted higher than 1200mm above the floor.

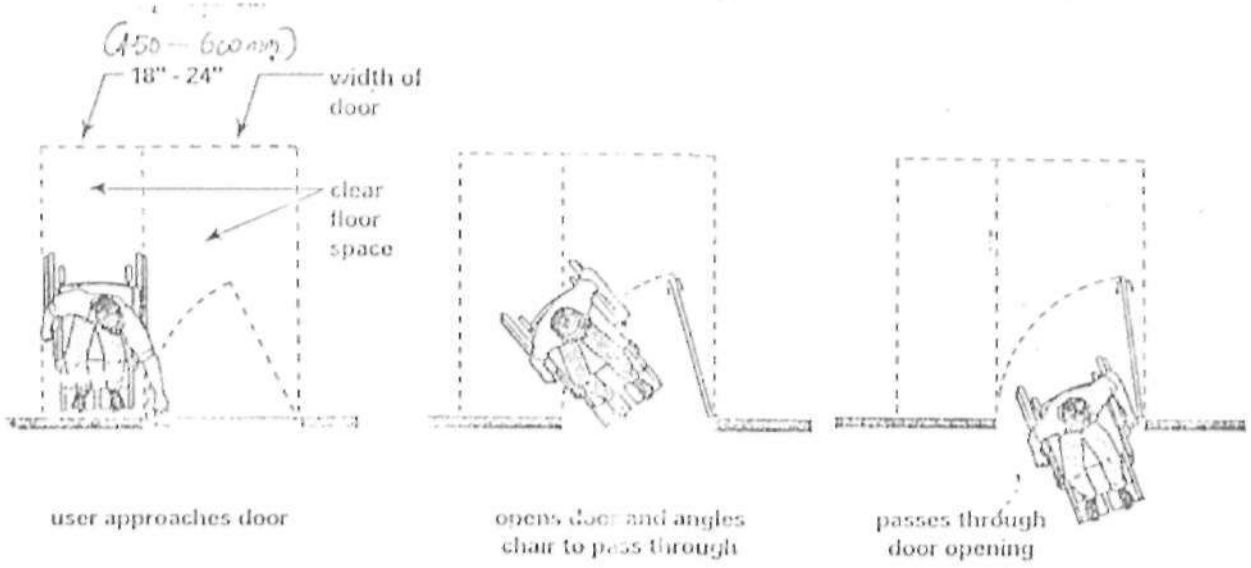


Fig4.8 Use of Clear Floor Space



Fig.4.9: Acceptable door hardware.

4.7.2 Windows:

Windows are used for ventilation and for lighting. This element should be installed on an accessible route with sufficient space to approach the window and open it. The controls and locks should be within easy reach of the user especially those on wheelchairs. The window can be approached by a person on wheelchairs in two ways, the side approach and the forward approach.

4.7.3 Toilets

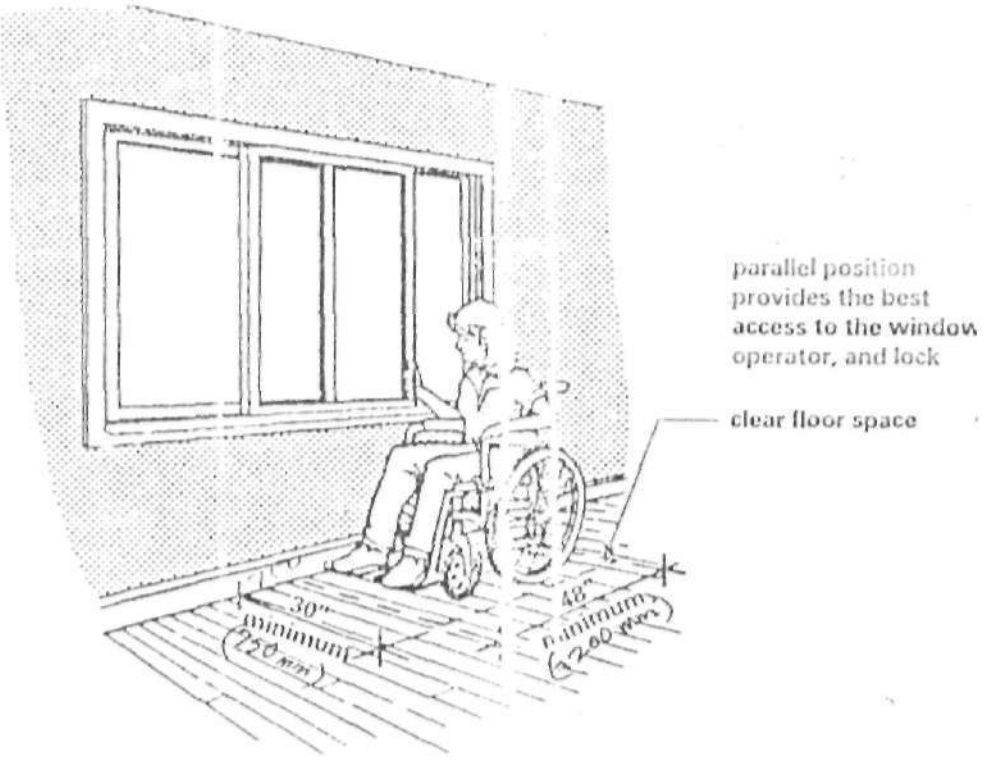
The use of the toilet involves safe entry. Factors affecting the successful use are the toilet seat height, placing of the grab bars, toilet paper dispensers and flush controls and transfer space for maneuvering within the toilet space. From the UFAS recommendations:

a) seat heights of 450mm are generally recommended.

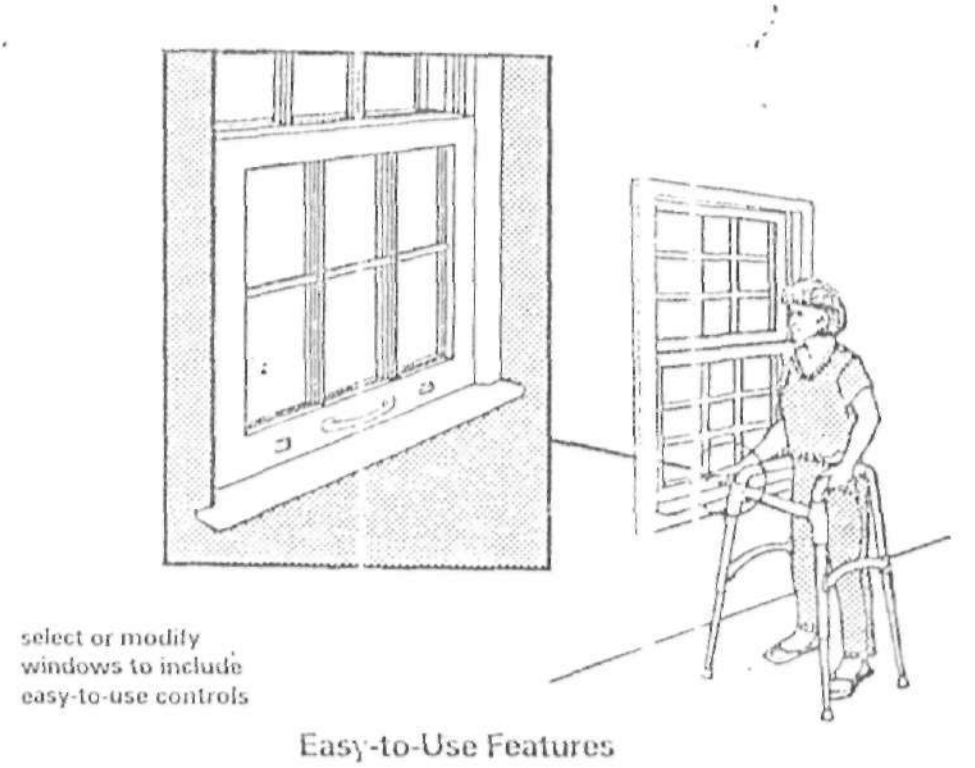
b) Clear floor space should be provided depending on the manner in which the occupant wishes to approach the toilet or the place where the door is placed.

c) Grab bars: These should be mounted securely at a space above the toilet seat convenient for grabbing, since their purpose is to provide assistance to those using the toilet. There are various methods of transferring to the toilet seat from the wheelchair and back. The diagram below shows the various ways.(Fig.4.11)

d) Controls: Flush controls should be located within reach of a person seated on the toilet seat and should be easy to operate.

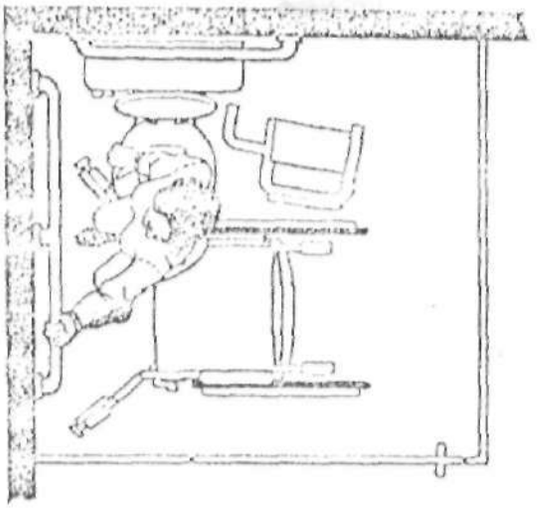


Parallel Approach for Side Reach



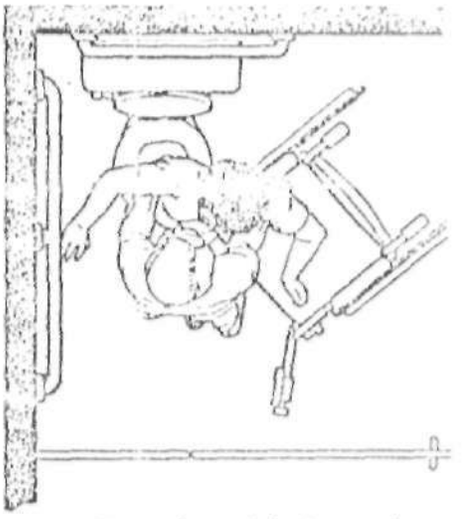
Easy-to-Use Features

Fig.4.10: Windows (source: UFAS Retrofit guide)



Perpendicular Approach

The chair is placed at right angles to the fixture and the individual uses the wheelchair and the grab bar for support while making the transfer.



Transfer with Attendant

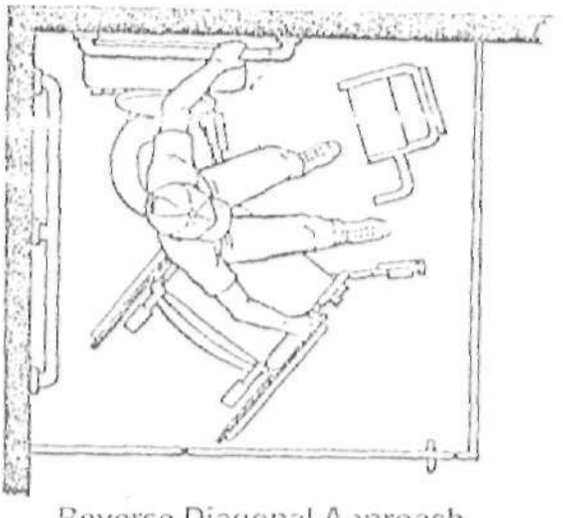
The 60 inch wide stall is usable by mo people but not all individuals can tran independently. Some people must hav an attendant to help them make any type of transfer. The wider stall provid space for an attendant to provide assistance as needed.

Transfer Techniques



Diagonal Approach

The chair is placed at a comfortable diagonal angle to the fixture. The armrest on the chair may or may not be removed. The user slides onto the toilet seat using the grab bar and the chair for support.



Reverse Diagonal Approach

Due to the nature of their disability, many people can only transfer on one side. One of the major advantages of the 60 inch wide stall is that it allows individuals to transfer using either their left or right side, depending upon the approach to the fixture. In the reverse diagonal approach, the chair is placed at a comfortable diagonal position facing the back wall rather than forward. The armrest is removed and the individual slides onto the toilet seat using the rear grab bar and the chair for support.

Fig. 4.11:Transfer Techniques

4.7.4 Bath Tubs:

A bathtub is a versatile type of fixture. it offers the user the choice of a soaking bath, standing shower or a seated shower when a removable tub seat

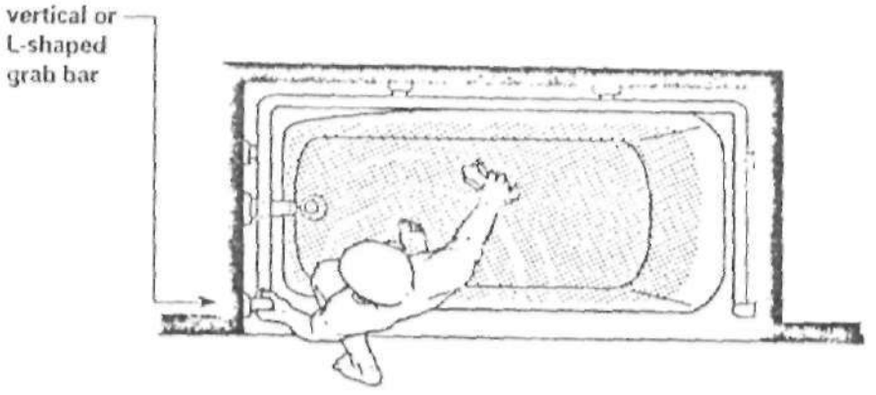
a) Floor space: It is necessary to have a good and sufficient clear floor for the wheelchair to is installed. The following should be considered.approach and transfer into the bath tub and back after bathing.

b) Grab bars: These are meant to assist the users to move into and out of the bathtub. Grab bars may be installed to support a standing ambulatory user as they step into the tub.

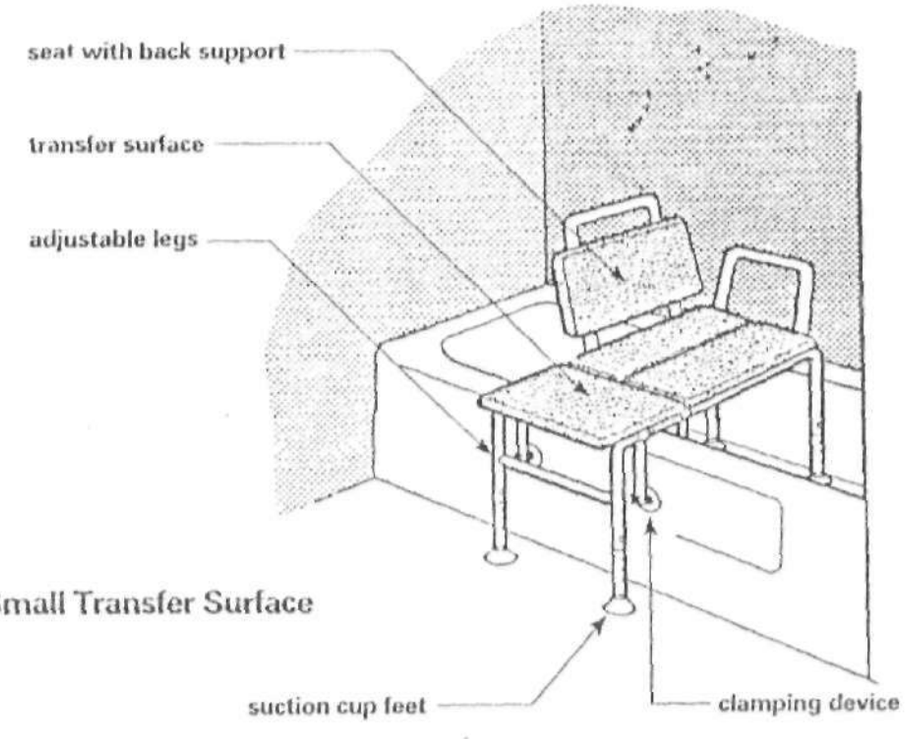
c) Sometimes, an in-tub seat is provided to allow a user have a shower while seating. They are usually demountable so as to allow standing showers or soaking baths.

4.7.5 Showers

There are basically two ways in which disabled people, specifically those on wheelchair can use a shower. They may transfer unto a surface in the shower or roll in their wheelchair under the shower. UFAS(1993) specifies a minimum space of 900mm x 900m for transfer shower. The seats for transfer should be foldable to allow a normal use of the shower. Roll in showers however have a minimum requirement of 1500mm x 1500mm floor space. A lavatory sink and mirror can hang over that space if there is provision for toe and knee clearance.



Vertical Grab Bar Provides Support for Ambulatory Users

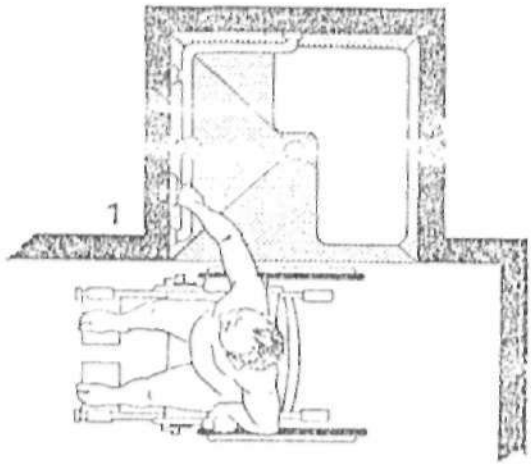


In-Tub Seat with Small Transfer Surface

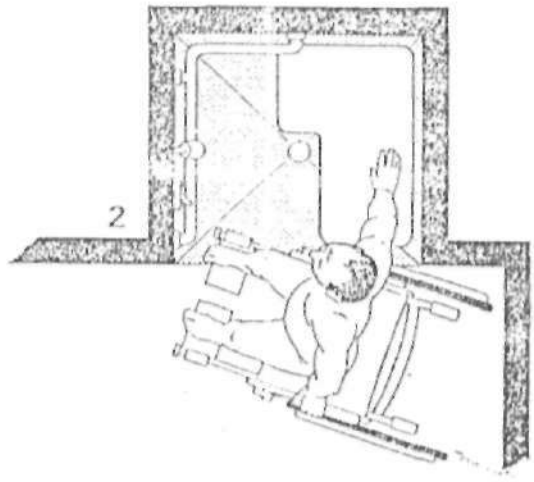
Fig.4.12: Bath tubs.(source: UFAS)

(900 × 900 mm)

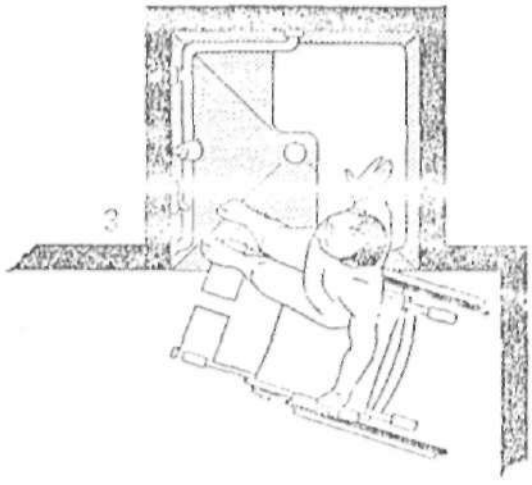
Use of the 36" x 36" Transfer Shower



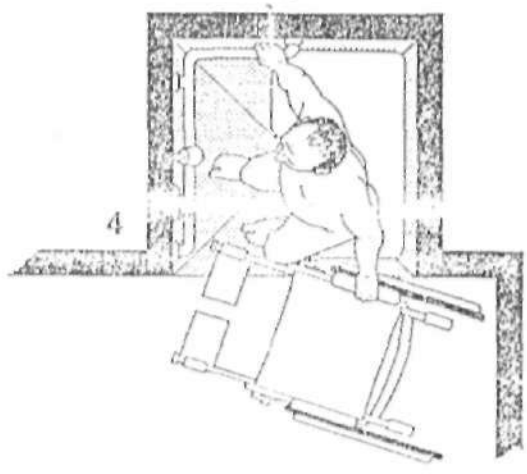
User pulls close to the controls which are easy to reach and tests the water temperature.



Because there is essentially no curb, the user can pull his wheelchair close to the seat. After removing the wheelchair armrest,



the user transfers from his wheelchair to the shower seat. Transferring is made easier and safer because the shower seat is generally mounted at the same height as the wheelchair seat.



Using the grab bar for support, the user slides over to the corner where the shower walls provide lateral support. The size of the shower places the controls within easy reach. The grab bar provides support for those who cannot easily reach forward to operate the controls.

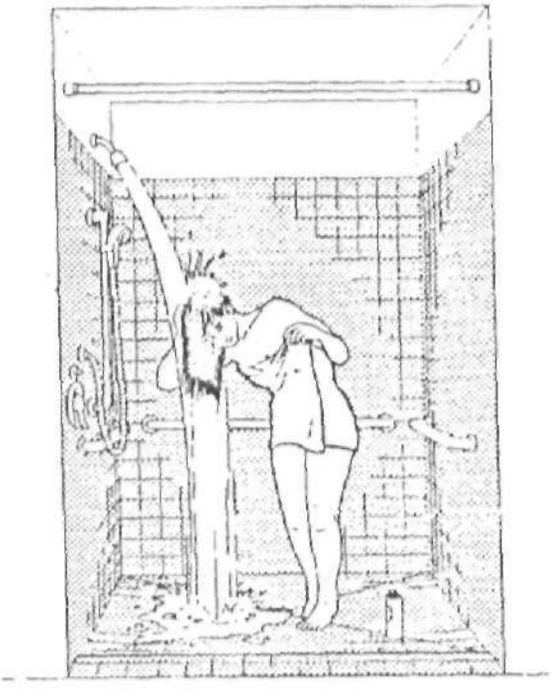
Fig.4.13: Transfer showers



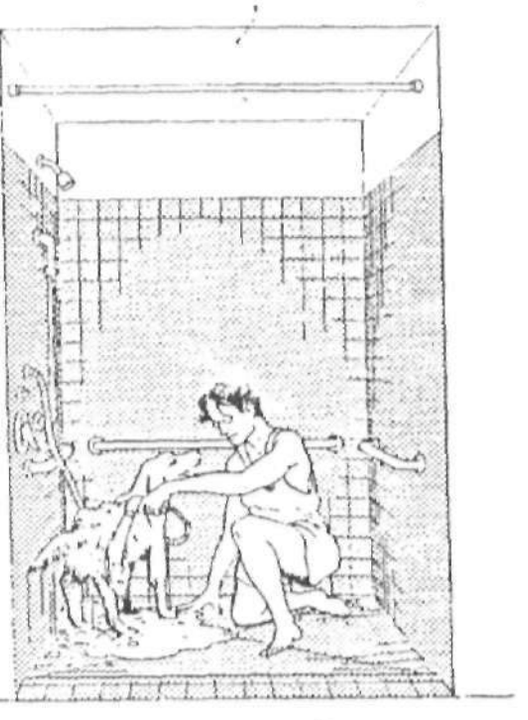
Roll-in showers provide enough space for people in wheelchairs to maneuver and enough space to have an attendant assist in the shower if necessary.



Portable seats can be placed in a roll-in shower for walking people who need to sit down to shower.



Roll-in showers can be used by non-disabled people in a conventional manner...



and they can be used by others for special purposes.

Fig.14. Roll in shower

4.7.6 Storage Facilities

Various types of storage facilities include cabinets, shelves, closets, drawers, etc, These elements are required to be useable by disabled people. There are basic considerations to be taken into account to make this possible. Clear floor space which allows a parallel or forward approach towards the storage unit is necessary. Also, for those that need to be pulled for opening, space is needed.

b) The height of the storage unit should be within the reach of the user. Clothes rods should not exceed 1350mm from the ground(UFAS,1993)

c) The imagery should be easy to reach and operate with one hand. (Fig.4.15)

4.7.7. Working Surfaces

This deals with seating and working surfaces found in various settings such as libraries, restaurants, classrooms, etc. Seating provided at work surfaces should allow knee space about 475mm deep and 675mm above the ground. Clear floor space to approach the surface is important and it should be linked to an accessible route. The mounting height of the table surface depends on the size of the user and the type of work to be done on it.

4.8 Assembly Spaces

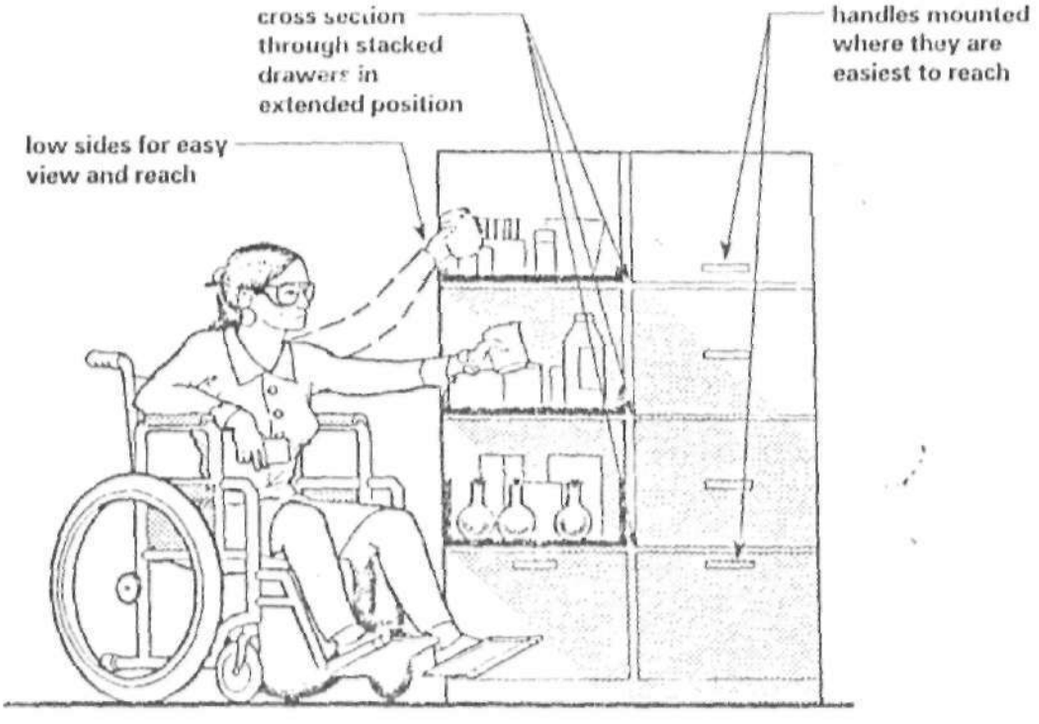
This can be defined as a space designed to accommodate large numbers of people for religious, recreational, educational, political, social or amusement purposes or for the consumption of food and drink. Under this category fall the libraries, auditoriums, art galleries, churches, restaurants, etc. Basic design considerations in assembly spaces are as follows:

a) Wheelchair seating spaces should be provided so that users can attend events comfortably with their families and friends. The number of wheelchair sitting spaces depend on the capacity of the building. The space required is 1500mm x 1600mm for one user.

b) It is also important to provide access for wheelchair users to the performing areas like stages, dressing rooms, rehearsal rooms etc.

c) Depending on the use of the space, spaces should be provided for access to each separate activity independently for disabled users.

As it has been mentioned earlier, assembly spaces include under one umbrella, a variety of uses for large numbers of people. The functions taking place within these spaces vary widely and care must be taken to design suitably as the requirements for each space are presented.



Upper Drawers with Lowered Sides Allow Seated Users to See and Reach Contents

Fig.4.15: An Example of A Storage Space.

4.8 Summary.

From the observations in this chapter it is evident that design for the disabled demands sensibility of the designer to the needs of the users. Some of these needs for space, height and width considerations are very unique and in fact sometimes deviate from the normal proffered standards. The standards that recommend the installation of elements of a building for disabled peoples' accessibility should be observed to see if it actually meets the needs of the user it is being designed for.

The outdoor environment needs as much consideration as the interiors especially with the awareness of the importance of a landscaped environment.

Transition spaces or circulation spaces facilitate movement from place to place thus they are of utmost importance for disabled people, especially those with difficulty in movement or discerning the direction of movement. It is however important to note that all efforts in designing for the disabled is not to alienate them from the non-disabled, but to provided an environment that will be beneficial and comfortable for both of them.

CHAPTER FIVE : CASE STUDIES OF REHABILITATION CENTRES

5.0 Introduction:

There are many attempts at rehabilitation of disabled people in form of buildings to cater for their specific needs. There is therefore the need to conduct observations on the existing facilities to have more insight into what it means to design for the disabled. The aim is to assess the design and appraise it. The good aspects of the design are highlight and the bad aspects are also highlighted and noted so that other designers do not repeat the past mistakes of others. It is important to learn from the failures of others when it comes to building design.

In this text, five case studies have been conducted three of these are located in Nigeria while two are in other countries. One is a home, two are vocational rehabilitation centers, one is a therapeutic rehabilitation center and the last is a school for the physically handicapped. they are as follows:

1) Beth Torrey Home Wusasa, Zaria
2) Kaduna State Rehabilitation Centre, Kakuri, Kaduna
3) Mariri Rehabilitation Centre, Kano
4) Center for the physically handicapped, Dublin
5) Londale School for the physically handicapped, Stevenage, Hertsfordshire U.K.

5.1 Beth Torrey Home, Wusasa, Zaria

5.1.1. Historical Background

The home was founded in 1968 by Miss Mary Beth Torrey to cater for handicapped children. The home catered for all types of disabilities as much as they could handle so there were more

mentally disabled children and a few physically disabled. The site contains both a home and a day school for those who intend to attend special classes from home. The project began with the home in 1968. The school later followed in 1977 and was completed finally in 1981.

5.1.2 The Site

The site is located on Tukur-Tukur road, off Wusasa road, Dan Magaji Area of Zaria. It is about 60m x 54m in dimension. The terrain is relatively flat with good access to both pedestrian and vehicular traffic.

5.1.3 Sponsor/Client

The project was sponsored by the founder Miss Beth Torrey along with other philanthropic people. Also assistance is given by the Kaduna Stage Government.

5.1.4 Scope/User.

The home caters for various types of disabilities especially
the mentally and physically handicapped children. Provision was made for recreation, accommodation, cooking, laundry services, classrooms and toilet training rooms. The functions sort of flow into one another without serious demarcations from one area to another. The home as it is named is neither therapeutic nor vocational in its operation. It is just to cater for the disabled especially severe cases that cannot live independent lives.

5.1.5 General Appraisal

The design does not indicate any explicit concept. There is simplicity in the design as rooms are cut out and placed along long corridors. The structural system consists of the load bearing block walls and a timber roof structure supporting the roofing sheet of aluminum. There is a combination of casement and louvre windows. Floors are made of concrete finish with a rough plaster.

5.1.6 Merits

- Compact planning
- Adequate outdoor space provided for recreation
- Simplicity of design

5.1.7 Demerits

- Rigid planning which reduces the possibility of future expansion.
- Double banking of corridors causing inadequate lighting which is detrimental to those with partial visual defects.
- Inadequate Ventilation
- Lack of aesthetic display especially on the elevations.
- Poor landscaping despite the adequate spaces available for such.

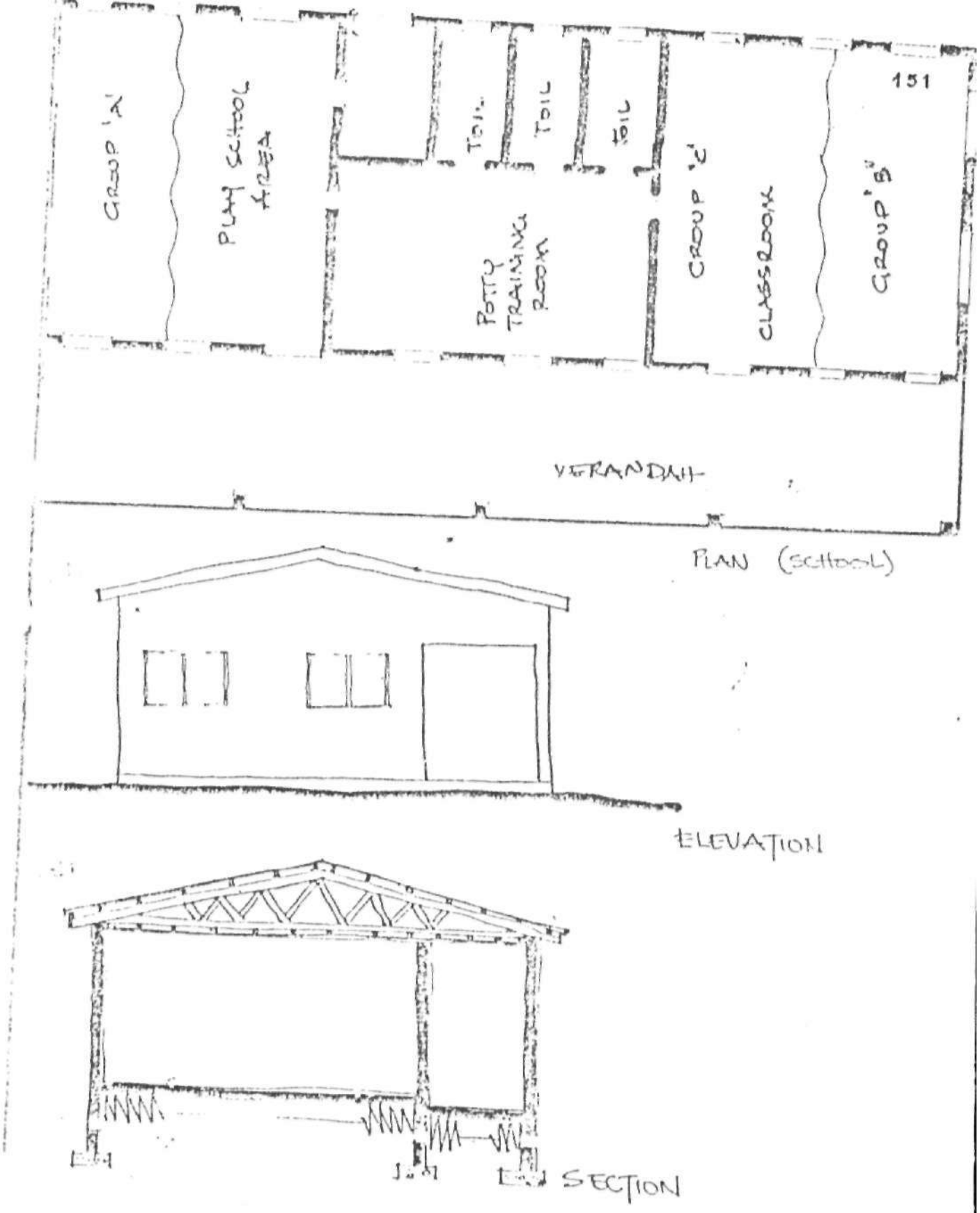


Fig. 5.1: Drawings of Beth Torrey Home, Zaria.

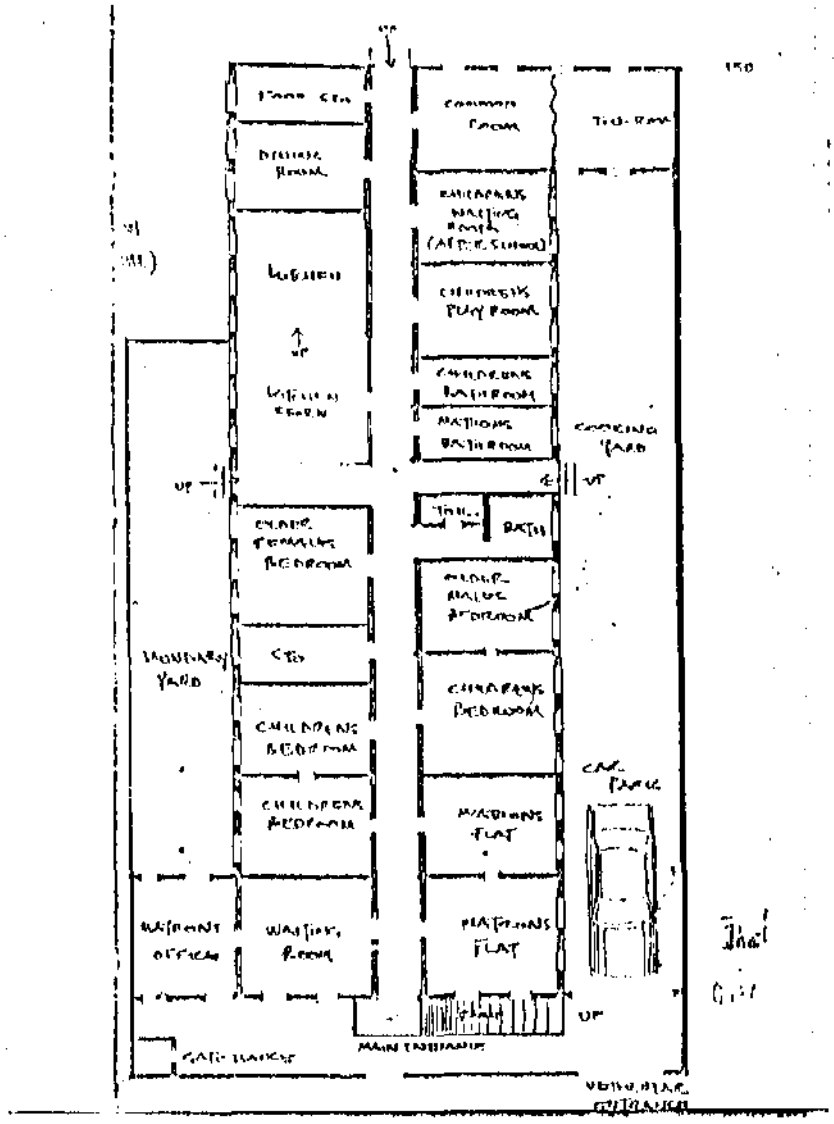


Fig.5.2: Drawings of Beth Torrey Home, Zaria.

5.2.1 Historical Background

The institution was founded in 1981 by the Kaduna State Government in the Balarabe Musa regime as governor. It was as a result of the desire of the government to rehabilitate the destitute and the disabled people. It is operated with a vocational approach, that is, it is not designed to be therapeutic but to help develop the disabled folks in certain crafts and to a level of literacy.

5.2.2. Clients/Sponsor

The Kaduna State Government is the major client of this institution. Help is sometimes received from philanthropic organizations or individuals. In the recent past, even the federal government has been involved in funding the institution especially through the Petroleum Trust Fund (PTF).

The in mates in this center are sponsored by their state governments or local governments to encourage them attend the institution instead of taking alms. The sponsorship covers payment of fees for tuition, feeding and accommodation. In this way, some people who attend are able to keep their families and also get trained.

5.2.3 Scope/Users The institution was designed to cater for a population of 500 people. Housing was also provided for staff members. As at 1986, there were 100 rehabilitates, in 1998, 40 people attended, but the school is expecting another 100 in the next intake. The range of disabilities covered include the blind, crippled and deaf and dumb. The age range catered for are adults. Most people who attend are adults with families.

Training is given in various crafts such as sewing, knitting mat weaving, basket weaving, cane chairs, bags etc. One of the hostel blocks was converted into classrooms because a classroom was not designed for the center. The various units of the services provided are enumerated below:

- Administrative Unit
- Workshop section
- Welfare(social workers, feeding)
- Educational section
- Hostel accommodation
- - Health department

5.2.4 The Site

The site is located in the southern part of Kaduna town in an area called Kakuri on Makera road. It is situated next to the Kaduna state general hospital, Kakuri, which is good for the purpose of health and therapeutic services. The terrain is relatively flat and ingress into the site is at one point.

5.2.5 Concept

The site was zoned into two major areas, namely the administrative and educational areas on one side and the accommodation on the other end. The buildings are sparsely distributed on the site with roads penetrating all zones on the site.

5.2.6 Merits

- Distinct zoning of the site, demarcating the public areas from private areas.

- Ample outdoor spaces for landscaping and recreation
- Good circulation between workshops.

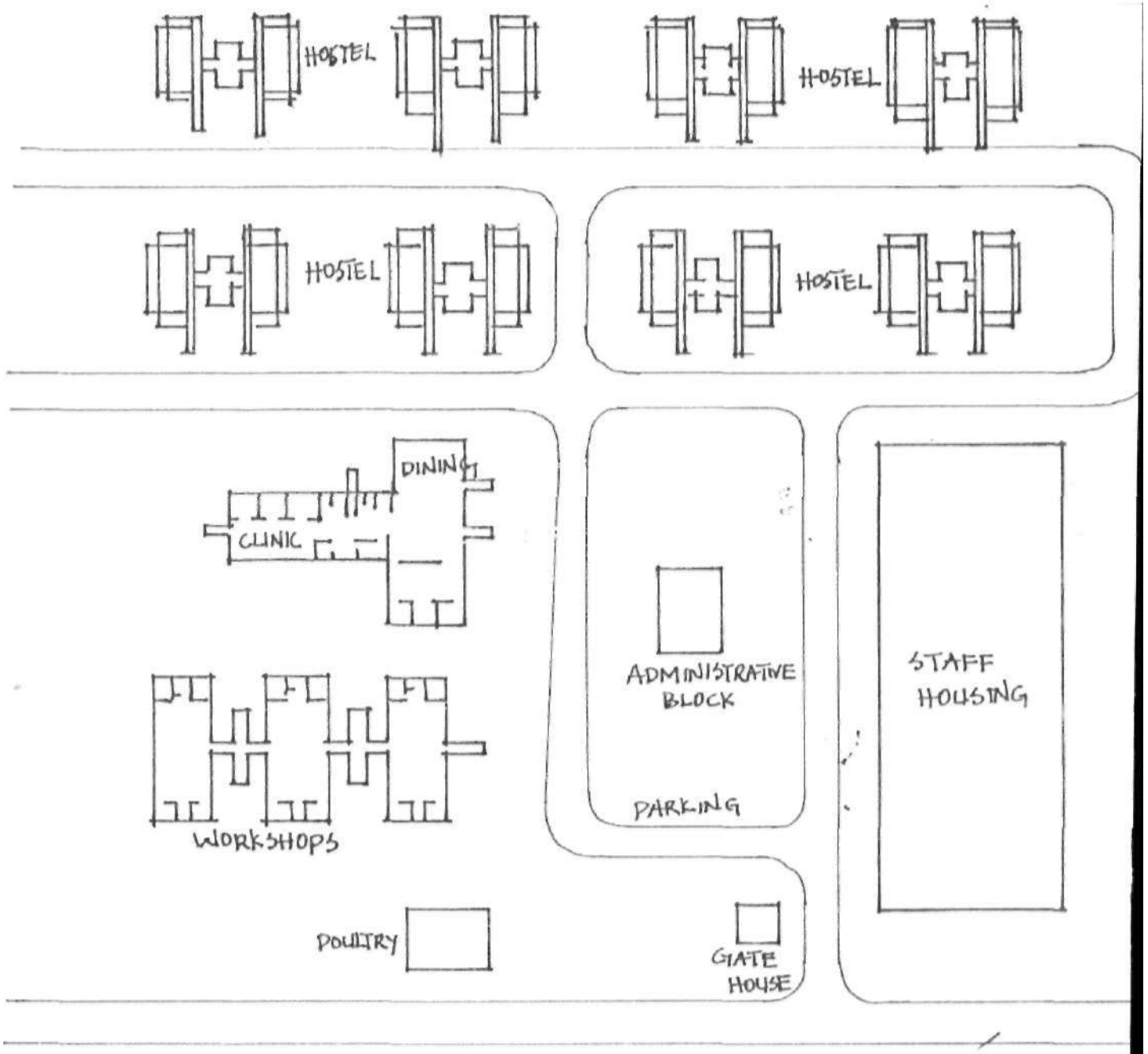


Fig. 5.3: Drawings of the Kaduna State Rehabilitation Center, Kakuri.

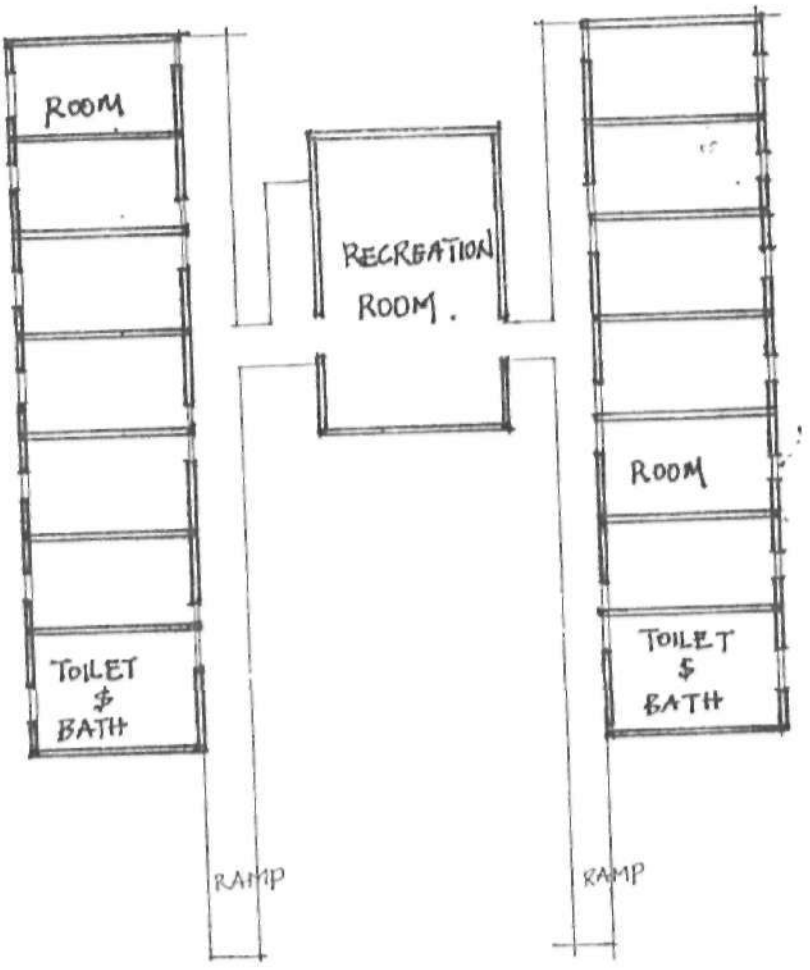


Fig. 5.3(b) : Drawing of one of the blocks.

5.2.7 Demerits

- Provision not made for classrooms
- Absence of a smooth path from roads to ramps leading to entrances.
- Absence of walkways
- Workshops not adequately lighted and ventilated
- Roads are not tared and not suitable for wheelchairs.
- Design not compact which is a disadvantage because it demands travel over long distances. This is not the best for disabled people because they lack the stamina for long distance movements.
- Roads are poorly designed and can be dangerous for users of wheelchairs or blind people, trying to move from one of the units to another.
- walkways or rather footpaths are uncovered.
- Ramps installed are too steep for use
- Staff housing design not accessible to users of wheelchairs.
- Provision not made for accommodation of auxiliary staff within the hostels.

5.3 Mariri Rehabilitation Center, Kano

5.3.1 Historical Background

The institution was established in 1980 by the federal government in conjunction with five state governments. It was started as a day institution but the need for boarding facilities arose and it was added in 1983. The institution was primarily set up to train the blind and the crippled in crafts as a means of livelihood. The aim was to reduce street begging.

5.3.2 Scope/User

The center was designed with a capacity of 500 rehabilitee. The facilities provided are the workshops, health facilities, accommodation, administrative and educational facilities. The range of disabilities catered for are the class with lower limb disabilities and visual impairments.

5.3.3 Concept

The whole site is zoned into two distinct areas namely, the accommodation and the school area. The site is accessed at one point with the road forming a ring around the administrative block, workshops, dining and clinic. The married rehabilitees_ quarters are the first buildings a visitor will meet as he comes in.

5.3.4 Merits

- Distinct zoning of site into various uses
- Safety of road design.
- Compact design in hostel block
- Provision for married rehabilitee.

5.3.5 Demerits

- Buildings are not connected or interrelated.
- Possibility of expansion reduced because of planning concept.
- Absence of walkways and cover protection from weather when moving from one building to another.
- Entrance from gate does not lead directly to administrative block.

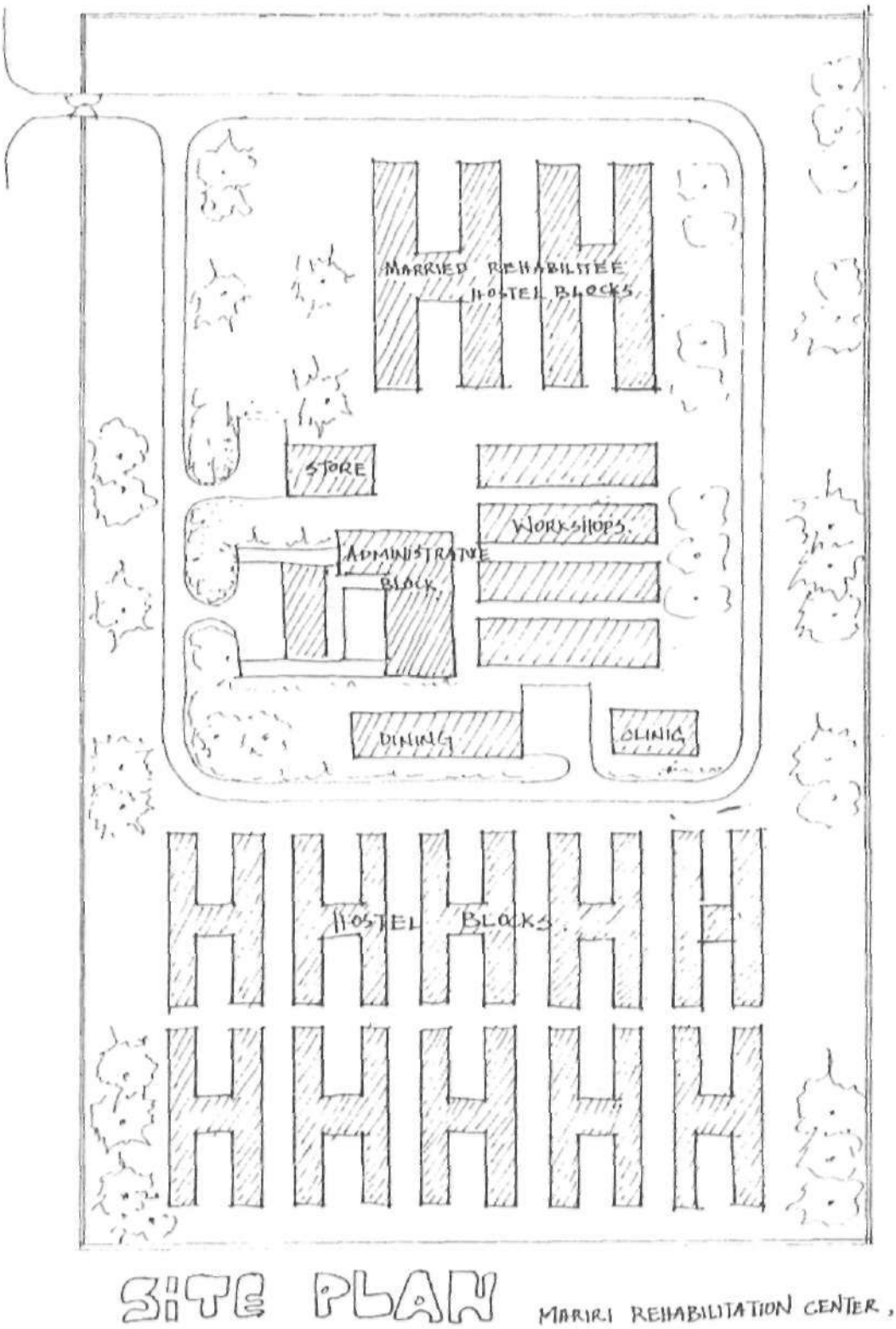


Fig. 5.4: Mariri Rehabilitation Center

5.4 Center For The Physically Handicapped Dublin

5.4.1 Historical Background..

This institution was started as a clinic in a room at penbroke street, Dublin in 1951. Through the 50's and 60's, the scope increased to include a school, a therapeutic swimming pool and workshops. In 1968, the center was opened on another street called vernon in Chantarf, dublin.

This part of the town is a moderately dense area with a good number of existing hospitals close by. The clinic was established to provide treatment and rehabilitation for people with physical disabilities and to help them achieve independent living. The center is more therapeutic than vocational.

5.4.2 Scope/Users

The center contains sheltered workshops for vocational training, day center, medical facilities for physiotherapy, hydrotherapy and occupational therapy. It also contains a primary school.

Rehabilitees from all ages are attended to in the institution. It is recorded to attend to between 240-300 patients per week, with additional 100 people working in the workshops, 80 students in the school and a staff strength of 30 people.

5.4.3 Concept

The center is a small and compact building with function distributed around two courtyards and the rooms themselves surrounded by ramps or walkways linking the main building to other functions like the classrooms. The factory is a large open space with columns to serve structural

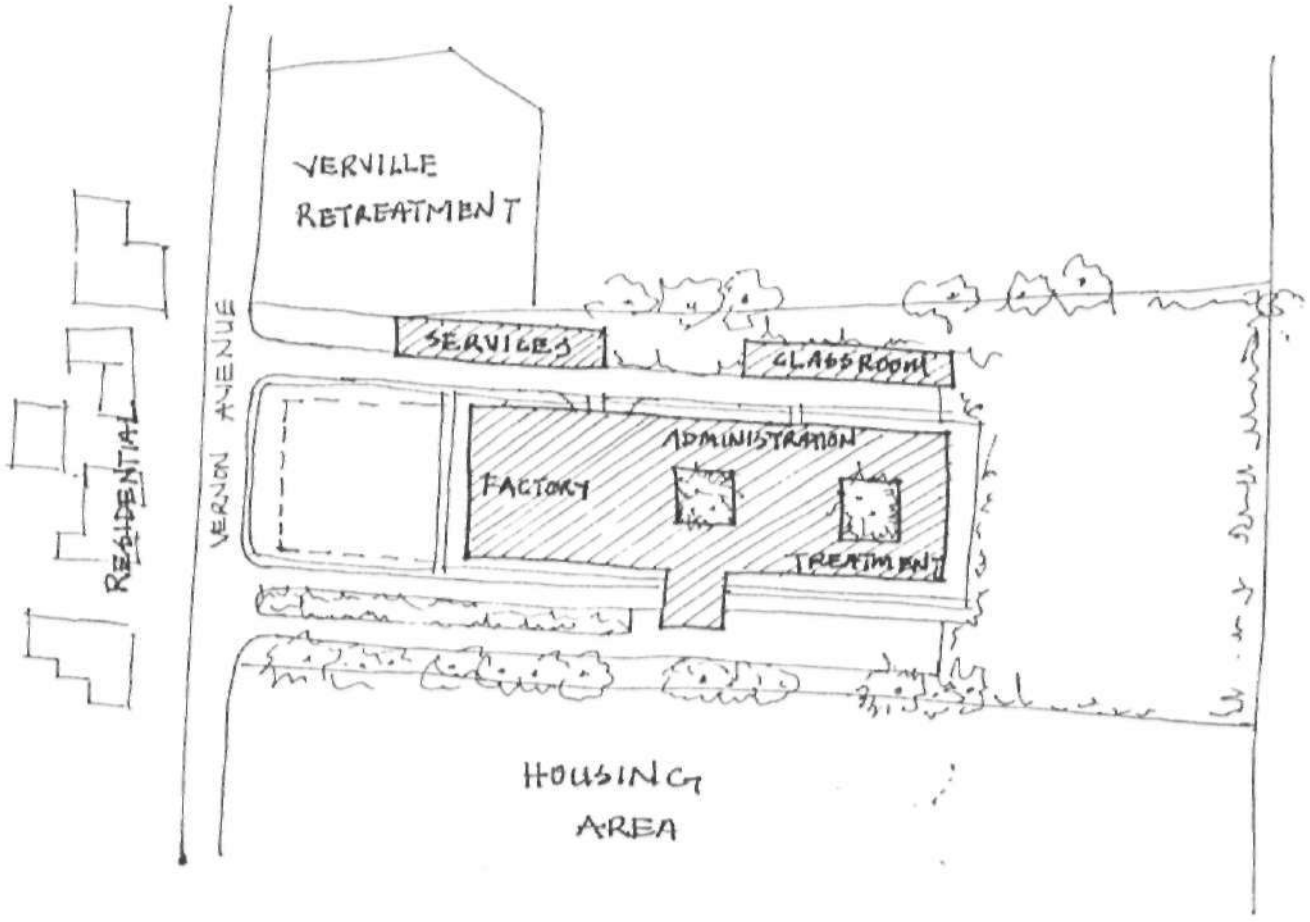
purposes. This allows it the flexibility to be partitioned into the desired spaces. There is the possibility of future expansion on the side where the factory is located and on the therapeutic side too. The design follows basically a linear concept, the administrative unit being the focal point.



FLOOR PLAN

CENTER FOR THE PHYSICALLY HANDICAPPED, DUBLI

Fig. 5.5(a)



SITE PLAN

CENTER FOR THE PHYSICALLY HANDICAPPED . DUBLIN .

Fig. 5.5(b)

5.4.4 Merits

- The design is compact and simple
- The plan follows a distinct zoning of three functions; therapy, administration, training workshop.
- There is adequate ventilation.
- Occupants are not exposed to dangerous roads.
- Walkways are provided and covered.
- Internal finishes are attractive
- Walkways are wide accommodating wheelchair maneuvering.

5.4.5 Demerits

- Sliding doors used are too heavy requiring too much force for it to open. This is not suitable for people using walking aids.
- Glazing from top to floor level is too exposed and gives a feeling of lack of privacy.

5.5 Lonsdale School For The Physically Handicapped, Stevenage, Hertfordshire

5.5.1 Historical Background

This school was designed as a special school to cater for the needs of children prevented from enjoying and benefiting from ordinary schools because of their handicaps. The education committee of the hertfordshire country had this done as a result of their concern for such children that fell into this category. It was designed to provide a centralized special school.

5.5.2 Scope/User

The school designed for physically handicapped children has a capacity of 100 students, 37 of the students reside within the premises while others are day students. It comprises of the administrative unit, therapeutic section, educational and vocational unit and the hostel accommodation. Welfare services are also provided.

5.5.3 Concept

The center is zoned into two distinct areas, the administrative area, therapy and welfare and school on one side, while the hostel rooms take another end. There are also three main entrances into the building. The northern gate leads into the primary school, the other two gates lead to the administrative and working areas.

5.5.4. Merits

- Distinct zoning of different activities
- Compact planning
- Location in proximity to other special schools
- Interesting design with the high care being the hydrotherapy pool.

5.5.6 Demerits

- Ramped entrances having channels at the thresholds, pose obstructions to the wheelchair
- Hostel accommodation offers no privacy.
- Presence of internal columns standing free and clear of the wall.

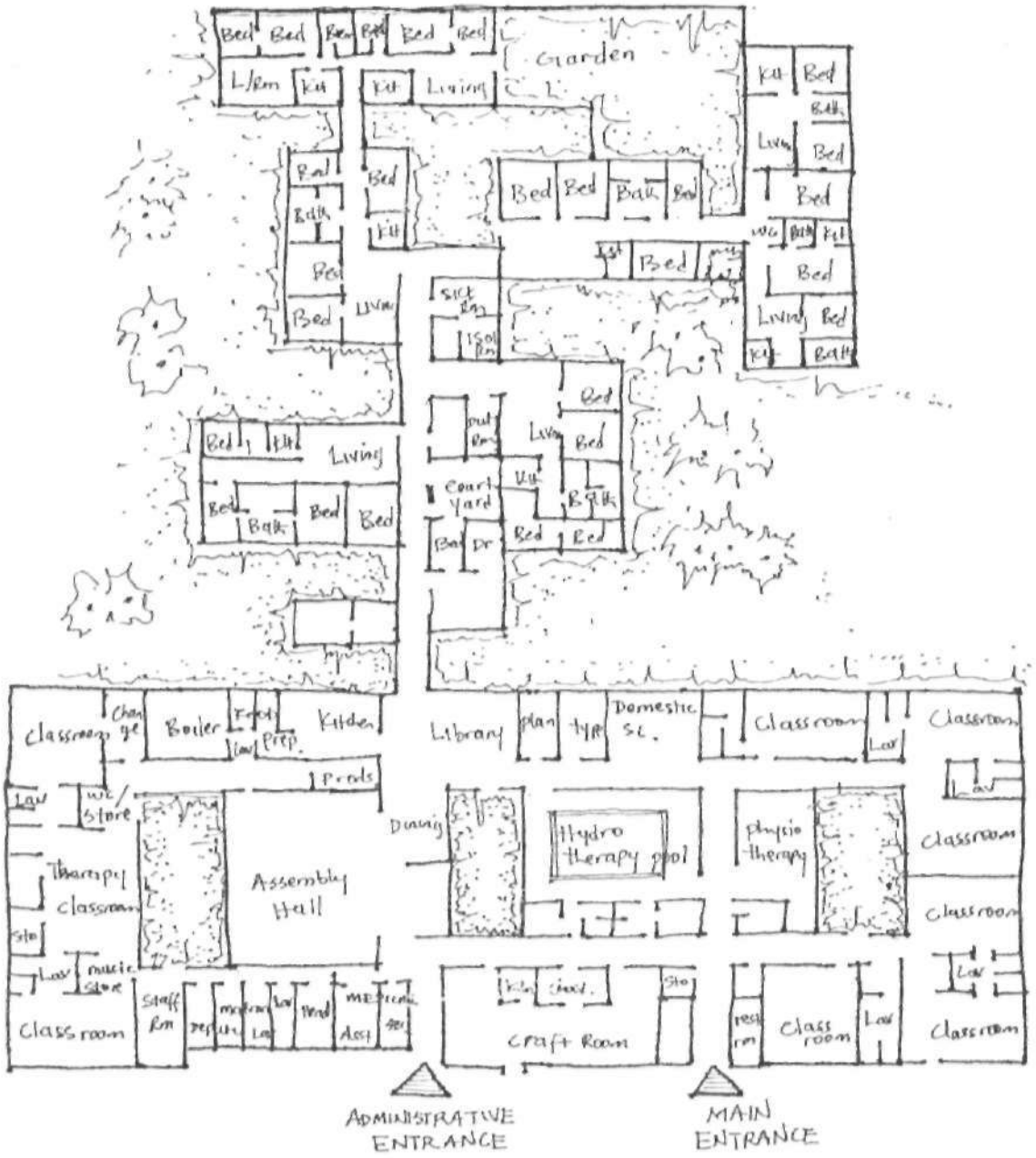


Fig.5.6: Londale School for The Physically Handicapped.

5.6 Summary

Observations of the above case-studies reveals a number of merits and demerits in each design. It is usually said that "no design is perfect" however, it is possible to have a successful design. The following observations are obvious, from the study of existing facilities:

a) Site Concept: Most of the designs in the overseas countries have a definite zoning concept for the site and the design is usually compact revealing a desire to make maximum use of space .The local case studies reveal a wasteful planning concept. Buildings are sparsely distributed over the site with no links or connections joining them.

b) Landscaping: There is a serious omission here in the Nigerian situation. The institutions are just built and the exterior abandoned as if the people using it are not important. This is however a general problem coupled with the bad maintenance culture the Nigerian situation is accustomed to. Walkways are not designed and when provided they are not covered to provide shelter from rain. The green areas are over-grown and have become bushy and hazardous. Roads are badly designed and badly maintained. Recreation spaces are not consciously provided in the design.

c) Finishing: The interior finishing of the building usually affects the occupant positively or negatively depending on the manner it has been treated. Good and aesthetic wall, floor and ceiling finishes are means of stimulating pleasant feelings in the users. This makes them more comfortable, more willing to learn and more productive. This aspect has not been properly handled also.

d) Furnishing: It is of utmost importance for the workability of a rehabilitation center to have furniture that will facilitate the training processes for the physically handicapped. This has been put into consideration in all the case studies observed but more could be done. It is important to create furniture as the needs arise so long as it will be functional. The good aspects of any of the designs observed may be adopted if necessary while the bad aspects are to be avoided in subsequent designs.

CHAPTER SIX: DESIGN REQUIREMENT AND BRIEF

6.6. Introduction

The craft center for the disabled will require certain basic facilities to function properly within the context of its design. The center attempts to cater for vocational activities, provide boarding facilities and other services that are supportive to the main activity of the center which is vocational training for rehabilitation. Also, the center seeks to provide a sort of model cottage industry for the disabled folks who have been trained in some of the crafts to be engaged in the center. It is therefore important to have good organization of the spaces and functions. Proper management on the part of the staff is also important. The staff for such a place as this need to recognize that they are special people administering their gifts to other people with special needs. They need to be compassionate, wise and firm, working for the interest of their students. They also need to have undergraduate training in the aspect of special education so as to be able to effectively do their job. It was intended that the design from the onset be simple and on a small scale with provisions for future expansion as the need arises for it. This is to avoid the danger of creating spaces that become unused spaces.

6.1 The Client/Sponsor

This project was introduced into the state government officials of the state in which it is intended to be sited. It was an idea received willingly and the officials voiced the willingness of the government to embark on such projects. Already, the federal government parastatals like P.T.F. and NDLEA are supporters of projects having to do with disabled people. It is therefore true to conclude that the state and federal government can be the clients of this project through the ministry of social welfare. The institution is also intended to be a revenue generating body because of the inclusion of a small scale industry where the crafts learned will be practiced and the products sent into the market.

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6.2 Feasibility

This refers to the practicability of the project and the possible impact on the economy and the society. Any income-generating project is sure to have a good impact on the society. Although, this center should not be viewed as a place to make gain but rather to develop and encourage the less fortunate members of the society, good management of it can help to make it self-sustaining such that funds generated will be used to run and maintain it. Items to be produced in the center are in high demand in the

market being household items that will be needed in every home for utility or aesthetics. Also, the location being Kano State, a very vibrant place economically, there is likely to be consumption by public on the items to be marketed. Graduates from the school or center will be able to be gainfully employed in public or private institutions of such crafts or start a mini-industry themselves. This crafts center therefore is a feasible project.

6.3 Components of The Center

Since the proposed crafts center for the disabled will take a complex form there are basic activities that will be going on in the proposed center. These activities are zoned into various parts on the site. Activities that are related are zoned into the same areas on the site. The space allocation for various functions vary according to the needs of the users and the importance of the functions taking place there. The planning concept will be as follows:

6.3.1 Workshop Areas.

This area contains the major part of activities being done on the center. It contains the training workshop areas and the production workshops. Different types of people are engaged in this area. The trainers and the trainees, the production workers for the small scale light production areas, and the technicians. This is where most machines will be contained for the various workshops. Security and a certain degree of privacy is essential for this area.Flexibility, provision for future expansion and functionality of space is important.

6.3.2 Administrative Areas.

This area will not be two elaborate. It is intended that his area houses the individuals who will organize the activities of the center as a whole. Management staff of the workshops and the other components of the complex are accommodated in this area.

6.3.3 The Ancillary Areas

The word ancillary can be defined as a supportive service given to the real thing. The real activity areas in this complex is the workshop area, however, there are a few services that need to cater for the users of the workshop while they take part in the training. Such ancillary services include the following:

a) Welfare services consisting of the cafeteria, dining, kitchens and other food affairs. This area will be used by the welfare staff such as cooks and caterers. Some food services for sale will be made available to those who are employed in the light production workshops.

b) Hostel Services. This is also part of welfare. The hostel accommodation will serve a porcentage of the rehabilitees population as some will desire to be day students. The auxiliary nurses and caretakers may need to have accommodation within the hostel of the students.

c) Medical Services. This will cater for the medical needs and first aid where necessary. Since the center is more vocational than therapeutic, the medical services are not too elaborate.

6.3.4 The Social Areas.

The social facilities consist of those services that the public may use as well as the rehabilitees on the complex site. This is to foster interaction between the public and the disabled people who will use the center. Such areas include a public library and the multi-purpose auditorium.

6.3.5 The Recreation Areas.

This area is the designed outdoor space for leisure. It will cater for the need for recreation and play. Landscaped areas will define the spaces for various functions in the recreation area. This area may also be accessible to the public in case of events where they will be invited.

6.4 Organization Structure And Manpower

The center will be run by a director who will be accountable to a management board comprising of government officials, reputed members of public and professional in care for the disabled. The director acts as a general overseer for the center. The two assistant directors will coordinate the two major sectors in the center, namely the training workshops and the production workshops. They would also head administrative affairs for these two sectors. The administrative staff will be involved in documenting and organizing the rehabilitees. The progress of each student will be documented and followed by the teachers, counseling and guidance services will be done there. This gives advice to the rehabilitee and the families. In the administration, all matters relating to finance will be handled especially the production section.

In the workshop areas for training, the staff requirements are for trainers who are skillful in passing across the practice of the crafts he/she has been assigned to teach. At least two experts are required in each craft and attendants to run errands will also be required. On the small scale production sector, about 5-10 disabled people will be employed in each craft section with supervisors and attendants. The attendants will also serve as the store keepers.

The medical section will need a consultant or medical adviser, two nurses and a therapist who may serve as a health visitor. Apart from these, auxiliary nurses who may at the same time serves as hostel caretakers will be required to stay close to the rehabilitees especially in their private quarters. Other supportive staff such as janitors, maintenance officials, cooks, librarians, receptionist, cleaners are very important to the running of the center.

6.4.1 Duration of Training.

The period of stay for training at the rehabilitation center is stipulated to be two academic years. Within the year there will be vacation to give a time of rest to both instructors and apprentices. If however, a student is not able to achieve the maximal or optimal level of craftsmanship within the stipulated period he or she will be allowed to spend extra time to master the skills.

6.4.2 Age and Status of Rehabilitees

It is important to design having in mind the age of the people who will be users of the facilities. The crafts center is proposed to be used by disabled people from the adolescent age to adult stages. This puts the limit to from about 15years and above. At this age, the individual is expected to have developed enough stamina to be involved in the crafts mentioned. This also allows the center to cater for a broad range of people thus flexibility is most important in terms of versatility. Facility must be useable by all the categories of ages and this does not require any form of limitation but rather, a few additions here and there and a few thoughtful alterations that will adequately meet the needs of all users. Married disabled people are also expected at the center and sometimes, a married man whose wife is also disabled can come with her for training so as to be able to earn a living for the family support. This will require adjustment in the boarding accommodation schedule to meet these needs.

6.4.3 Crafts to be learned at the Center.

From the analysis in the third chapter of this text concerning crafts, the following crafts have been selected to be taught and practiced at the craft center because of its suitability to the category of people the center is designed for:

Ceramics

Carpentry and wood works

- Cane and Raffia works
- Calabash carving and Decoration

- Mat, hat and basket weaving
- Textile works., Dyeing, sewing, embroidery, knitting etc.

Items to be produced include utility items such as dishes, pots, shoes, bags, mats, baskets, hats, and decorative items such as sculptures, baskets, fabric etc. These are on high demand in the convenience goods category.

6.5 Design Parameters

This refers to some of the aspects of the center activities put into consideration in the development of the design concept to achieve a successful design.

6.5.1 Vehicular Access and Parking Vehicular access and movement generally is to be restricted to a part of the site so as to avoid crossing with the pedestrian traffic. This is to remove the hazards posed by vehicles to the wheelchair user or a visually impaired individual. Only private vehicles will be allowed into the site commercial vehicles will be provided a convenient stop from which passengers can alight and get into the center protected by covered walkways. Parking spaces are provided for workers and a few visitors who will be coming within the complex. Also, vehicular access is provided to serve the welfare and medical areas. Ambulance parking is provided also in the case of emergencies.

6.5.2 Pedestrian Circulation

This part of the design is very important considering the conditions of the users of the center. The people with limb disabilities or visual impairments usually lack the stamina to walk long distances or even more over long distances on their wheelchairs thus walking areas must be as short as possible. This will automatically result in a compact design. Walkways should be straightforward and not ambiguous. They must show where they will lead a person to. The walkways will be covered to protect users from the elements of weather. Walkways are wider on routes that are anticipated to have higher traffic than other routes. Longer walkways range between 2.0m - 3.0m while the minimum walkways provided are 2.0m. Alongside the walkways are good landscaping and educative elements to keep the wind of the users busy especially on the longer walkways. Walkways will be made of non-slip concrete finish to prevent slippery surfaces.

However, they must be level and meet the requirements of an accessible route as mentioned earlier. Ramps will be introduces on these walkways where a change in level is encountered. The same will be done at the junction between road ways and walkways. Curb ramps can be introduced to facilitate easy transition for wheels.

6.5.3 Safety and Escape

Safety in this concept refers to the ability of users to move around and use facilities provided at the center without any hazards posed on their ways. This has to do with the architectural design and finishes. The ramps provided are to be of slopes between 1:12-1:20 which is the recommended standard as discussed in the fourth chapter of this write up. The surfaces of walkways and rooms are to be level but not slippery to avoid accidents.

Escape routes are to be provided in the case of fire incidents. These routes should be useable by the disabled people without any assistance. This is to help them escape to safety without waiting in danger for a rescue party.

6.5.3 Security

Since the center will house various machines and gadgets, it is required that maximum security possible be provided even in the planning. The design should not be porous and easily accessible.

6.5.4 Comfort

Shelter, from the time it came into existence, has always been for comfort. This center has been conceived to be a place of all types of comfort to the users. In the design for comfort, considerations will be given to the climatic conditions of the site such as wind, rainfall, sunshine, heat, humidity etc. Proper orientation of the structures are some of the ways used to achieve comfort. Also, overhanging roofs help to shade the building from excessive heat. Shading devices will be used where necessary on windows. Openings will be located on sides that will capture cool breeze in humid periods.

6.5.5 Flexibility of Space

This is defined by the chambers dictionary as the ease of adapting to new conditions. Flexibility of space in architecture will therefore be the ease of converting a space from one use to another as occasion demands it. According to Olunloyo (1997), flexibility in architecture can be expressed in four ways.

a) Fluidity : This is a situation whereby a space seems to flow into another space. There is a sort of continuity. It is opposed to the traditional form of compartmentalization of space which is not easily adaptable to other uses. When a large space is created, it can be partitioned using demountable materials. This is to effect free flow of space and openness. Interaction from one space to the other can be achieved by creating visual contact, i.e. transparent partitions.

b) Versatility: This is the ability of a building space to be used for different things. The idea is to remove rigidity and formality from the spaces provided especially in the workshops. The learning process may involve multiple activities being carried out in the same space.

c) Convertibility: After a space has been used for some functions, it may be required to be converted to another use as discoveries continue on the necessity of some activities as against others. This will lead to cost economy because some buildings will not need to be demolished for other to be erected. They would just need to put minor changes and it will serve the purpose required.

d) Expansion: There may be need to increase the scope of the activities and existing structures may not be adequate. In fact, any institution of this sort that is progressing should have the need for expansion within a short while. It is however usually better to design with moderation and then make provision for future expansion to avoid disappointments in case the anticipated growth does not occur.

The above are the four elements of flexibility employed in this design. This is especially true for the training workshops and the multipurpose hall in the social area.

6.6 Services

The servicing of the various buildings on this complex will be effected by locating the areas that need servicing in close proximity in planning. The various services are the water, electrical, waste disposal, fire fighting services etc. All these services have various requirements differing from one another thus care is being taken to select the best possible options for these services to the facility provided. Each of these are discussed below;

6.6.1 Water Services

This has to do with water supply into the complex and the disposal of waste water after use. Water supply will be needed in the shower units within the hostels, the wash-hand basins and the water closets(toilets). Taps will need to be located at central places and heights convenient for sedentary positioned users. The tap heads used here are easy to handle and operate. Screw taps and dome head taps are recommended for easy handling. The shower units may be supplying hot water through electric heaters. The shower controls are located at convenient heights to be operable by people in a seated position. All plumbing works are to be concealed in ducts as much as possible to hide the ugly finishing it normally produces. Such ducts should be accessible at convenient points to facilitate repairs or replacements of pipes. Pipes that are exposed especially under wash-hand basins should be covered with soft material to prevent grazing the knees of seated users especially in the workshops.

6.6.2 Electrical Services

This involves the transmission of electrical power from the mains to every electrical outlet in the complex. A simple layout of electrical connections will be most preferable. Light switches and sockets are those parts that are usually used by occupants. The heights of sockets are a bit raised while switches are brought lower to help the seated people have an independent access. A height of 1.3m from the finished floor level is recommended for these. Light switches will be located on the entrance walls for easy use in darkness. High illumination levels are needed for areas of activity where precision and accuracy are essential.

6.6.3 Drainage Services

This is the means of removing rainwater run-offs and other forms of waste water that may be generated at the center. Drainage gutters are recommended around every building on the site. These should be covered with concrete slabs with some removable ones for repairs. The slope of the site should be studied and taken into account in the design of the drainage. All water collected should be passed to the main drainage gutter outside the site.

6.6.4 Hostel Accommodation

. There are three categories here.

- Single Male
- Single Female
- Married

It is not uncommon to find married couples coming for rehabilitation and training thus there is the need to provide living areas for married people. Also, male accommodation units will be separated from female units and there will be restriction in movement within the female units. This is to conform to the prevalent culture of the prospective users and the environment at large.

The units for married couples are to be designed in enclosures of 12 rooms with shared toilet and kitchen facilities. The units for the single men and ladies will have the same structure but may be smaller in size. Security should betaken into serious consideration as the occupants will need protection against attacks. Also, escape to safe refuge should be considered because there is likelihood of fire incidents in the hostel units because of electrical outlets provided and since occupants sleep in these units, incidents of fire may not be detected quickly.

6.7 Schedule Of Accommodation.

The first phase of developing this craft center will require some basic facilities. The rest however will be determined by future growth characteristics. the schedule of accommodation is hereby proposed for the smooth running of the center .

ACCESS AND ENTRANCE AREAS.

- Entrance gate
- Entrance gate house
- Drop off areas for commercial vehicles
- Parking spaces
- Parking for Ambulance and Kitchen services

ADMINISTRATIVE SECTION

- Reception/Information desk
- Directors office
- Assistant Director
- Secretary
- Welfare office
- Counseling office
- Volunteer Director
- Main waiting
- Staff lounge
- Records room
- General office
- Caretakers' office
- Staff room
- Class rooms
- Conference room
- Coffee room
- Store
- Toilets

TRAINING WORKSHOPS

- Ceramics workshop
- Leather workshop
- Crane and Raffia workshop

- Textile workshop
- Calabash workshop
- Basket, Mat, Weaving workshop
- Carpentry and Metal workshop
- Changing rooms
- WC (ratio 1:20)
- Showers
- Locker rooms
- General store

PRODUCTION WORKSHOPS

- Exhibition
- Reception
- Production Manager
- Secretary
- Sales office
- Supervisor's office
- Finished goods store
- Raw material store
- Ceramic workshop
- Leather workshop
- Cane and Raffia workshop
- Calabash workshop

- Textile workshop
- Carpentry and Metal workshop
- Basket weaving workshop
- Changing rooms

  WC

  Showers

  Changing lockers
- Cafeteria and Kitchen service

SOCIAL FACILITIES

- Multipurpose Hall
- Store
- Library
- Landscaped recreation space
- Snack shops and sitting

WELFARE FACILITIES

- Dining Hall
- Kitchen
- Store

MEDICAL SERVICES

- Consultants office/Doctor

- Pharmacy/Drug store
- Waiting
- Card room
- Treatment room
- Rest rooms
- Minor Therapy
- WC and shower

HOSTEL FACILITIES

Since 200 rehabilitees are expected at the center, accommodation is provided for 50% of users and 25% of this number is expected to be married couple's lodgings. This means: 100 spaces are provided, 25 of which are for married couples.

- 12 bedrooms
- Shower stalls
- WCs
- Common room

- Caretakers' Accommodation;
- Living room
- Bedroom
- Kitchen
- WC and Bath

MAINTENANCE SERVICES

- Generator house
- General store
- Overhead water reservoir
- Bore hole services

STAFF HOUSING

This is a proposed section to be part of the expansion although a few accommodation unit may be erected at the onset. The plans for this are not developed but the space allocation is indicated on the site.

6.8 Summary

The basic requirements have been spelt out based on observation and intentions to create a conducive learning environment for the users of the proposed complex. Facilities to be provided have been discussed and the reasons for certain lines of actions revealed as has been shown by past experiences of rehabilitation institutions.

CHAPTER SEVEN: THE SITE

7.0 Introduction

The study area for this research was chosen to be Kano State and Kano City being the capital of the state. The state was chosen as a result of observation which showed that government, that is the state government was interested in providing facilities such as this for the rehabilitation and care of the disabled within the Kano society. This fact is proven by the presence of facilities catering for various categories of disabilities respectively. Kano State is one of the many states in Nigeria that has a high population of disabled people and the government has endeavoured to provide facilities for them for vocational and therapeutic rehabilitation. One would tend to think that since Kano has these facilities, it would not be necessary to provide such, however, research showed that facilities were available for all classes of disabilities except for the crippled as at 1998. This fact was blamed on the attitudes of those with limb impairments because they normally still leave their center to go out for alms. However, it is believed that if the required conditions that are favourable for living are provided, the crippled rehabilitees would prefer them to the streets.

7.1 Study Area

Kano is the capital city of Kano State. It is the largest town in northern Nigeria. It is bordered on the east by Jigawa State. Kaduna at the south and Katsina at the north and western borders. it lies between latitude 10^0 30'N and 13^0N and longitude 7^0 40' E and 10^0 35' E. It covers an area of 21,200 km^2 (Square kilometers). The total number of disabled people is 30.000 heads, with 33% of the population being blind while 20% are crippled. The city is an urban center with vibrant economic and commercial activities.

7.2 Topography

Kano metropolis is about 500km from the perimeter of the sahara desert. It is about 450-500 meters above sea level. The ground character is generally undulating with height levels broken by the Dala Hills and the Goron Dutse Hills.

7.1.2 Vegetation

The Kano City has a Sudan Savanna vegetation. The land falls close to the desert region thus some desert characteristics are found. Trees are sparsely distributed, grasses are not dense and the most common are the orchard bushes. Trees are low level trees.

7.1.3 Climate

This talks about the environmental factors that affect the comfort of the Kano dwellers. The area is characterized by a composite climate with high temperature by day and cold at night. There are two seasons within the year, the dry season and the raining season. However, Kano experiences high temperatures throughout the year. Maximum temperature is experienced in April(40^0) while the minimum is experienced in January (18^0C). The wind nature is responsible for the differences in climate conditions in the state. The North-East trade winds brings the dry seasons along with cold, dust and harmattan around October, November to January. The South-West trade winds brings the wet seasons which reaches its peak in July and August with average velocity of 3.75m/s.

Rainfall reaches its maximum between May and September while there is little or no rain between November to February.

Humidity is about 80% during the raining or wet season while in the dry season, it drops to 13% in the afternoons.

7.1.4 Historical Background

The Kano city has a history of over 1500 years. Dala was the site for the first settlement probably because of the hill. It is the major source of iron ore in the region and provided security for the dwellers. Crafts men began to mine the metal from the ore thus migration began from other places to Dala causing social and commercial developments. Other crafts that were practiced by the people are the leather works, building construction, weaving dyeing and pottery.

7.2 Site Selection Criteria

A site for the proposed crafts center for the disabled had to be selected within the Kano metropolis. The first site considered was located in the Dala Local Government close to the Bayero University, Kano. The second option was to locate the facility on the same site as the mental health institution in Dawanau, Kano State. The following factors were considered to influence the choice of the site.

a) Accessibility to community facilities such as hospitals (to aid therapy), urban centers, educational and administrative areas.

b) Centrality of the center.

c) A relatively flat site was required

d) Supply of services such as water, electricity, telephone, drainage, waste disposal etc.

e) Proximity to a market (where goods can be sold.)

Based on the factors mentioned above, the Dawanau site was chosen

7.3 Site Appraisal

The site is situated on the outskirts of Dawanau Village a little to the north of Kano Metropolis. It is bounded by the Katsina road on the east and a vast expanse of land on the west. The northern part is bounded by the Dawonau market. On the southern part is green area providing good view and vegetation to refresh the users of the complex. its size is about 3-4 acres.see fig.7.1

7.3.1 Access

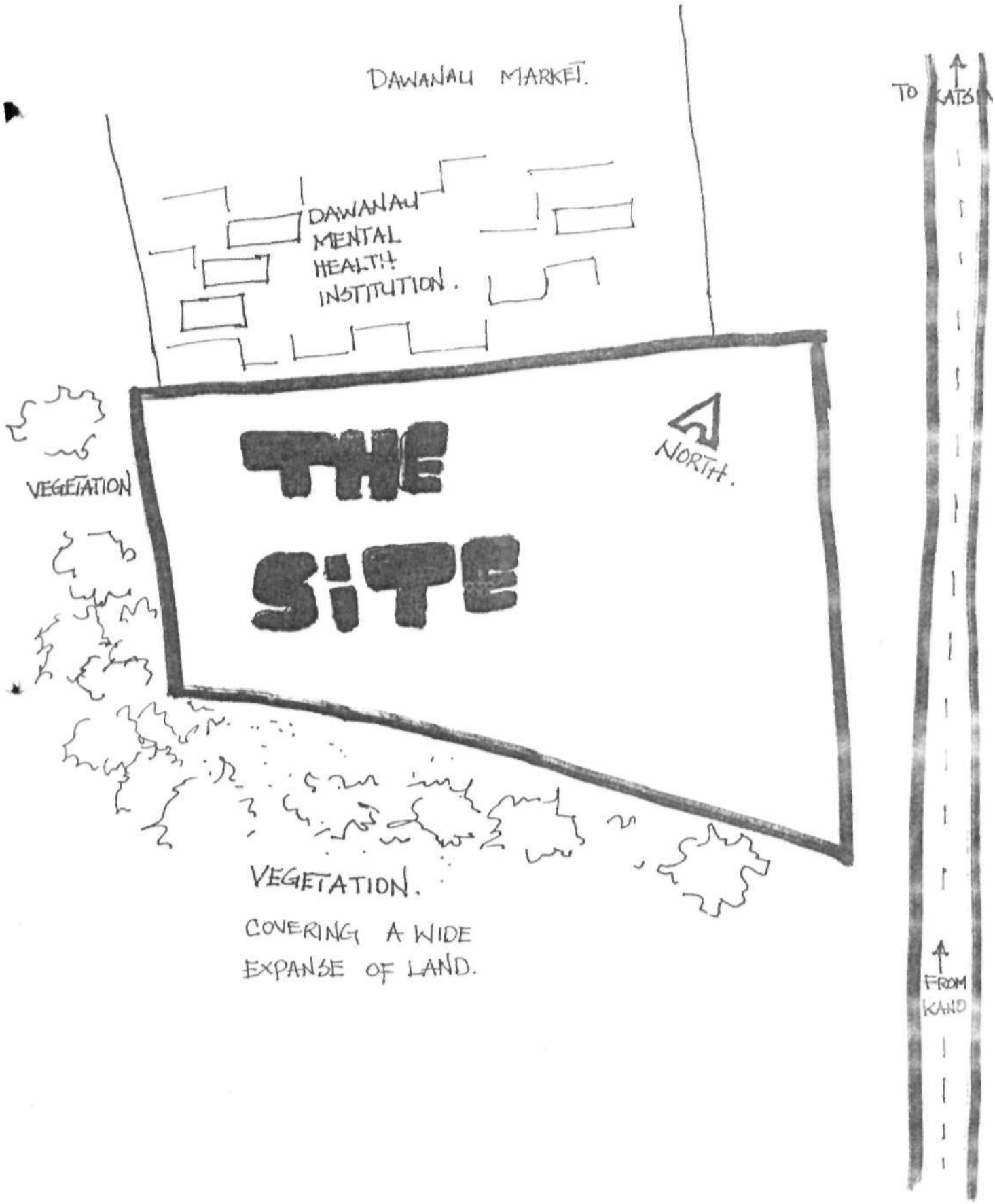
The site can be adequately accessed from the trunk A road leading to Katsina. Provision has been made for pedestrians to be able to independently access the site and all its facilities too.

7.3.2 Topography and Vegetation

The site is relatively flat with a gentle slope towards the south eastern part of the site. The site is filled with low rising trees and shrubs. More trees and plants will be grown as time goes on to put into the environment adequate landscaping.

7.3.3. Microclimate

The existing vegetation may lead to high heat gains because of its sparseness.


DAWANAU MARKET.
TO KATSINA
DAWANAU MENTAL HEALTH INSTITUTION.
THE SITE
NORTH.
VEGETATION
VEGETATION.
COVERING A WIDE EXPANSE OF LAND.
FROM KANO

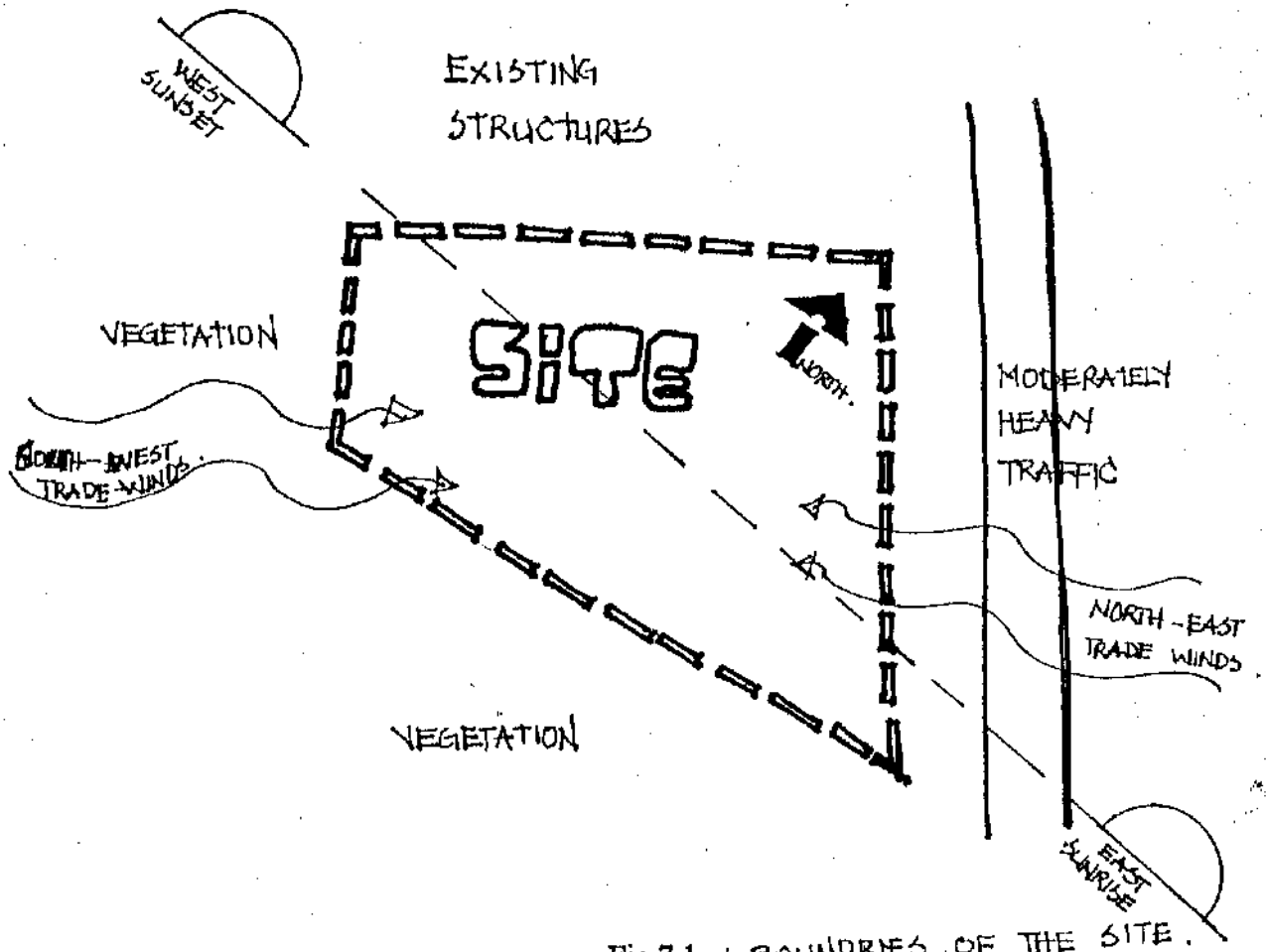


Fig.7.1 : BOUNDRIES OF THE SITE.

SITE CONCEPTS.

(a)

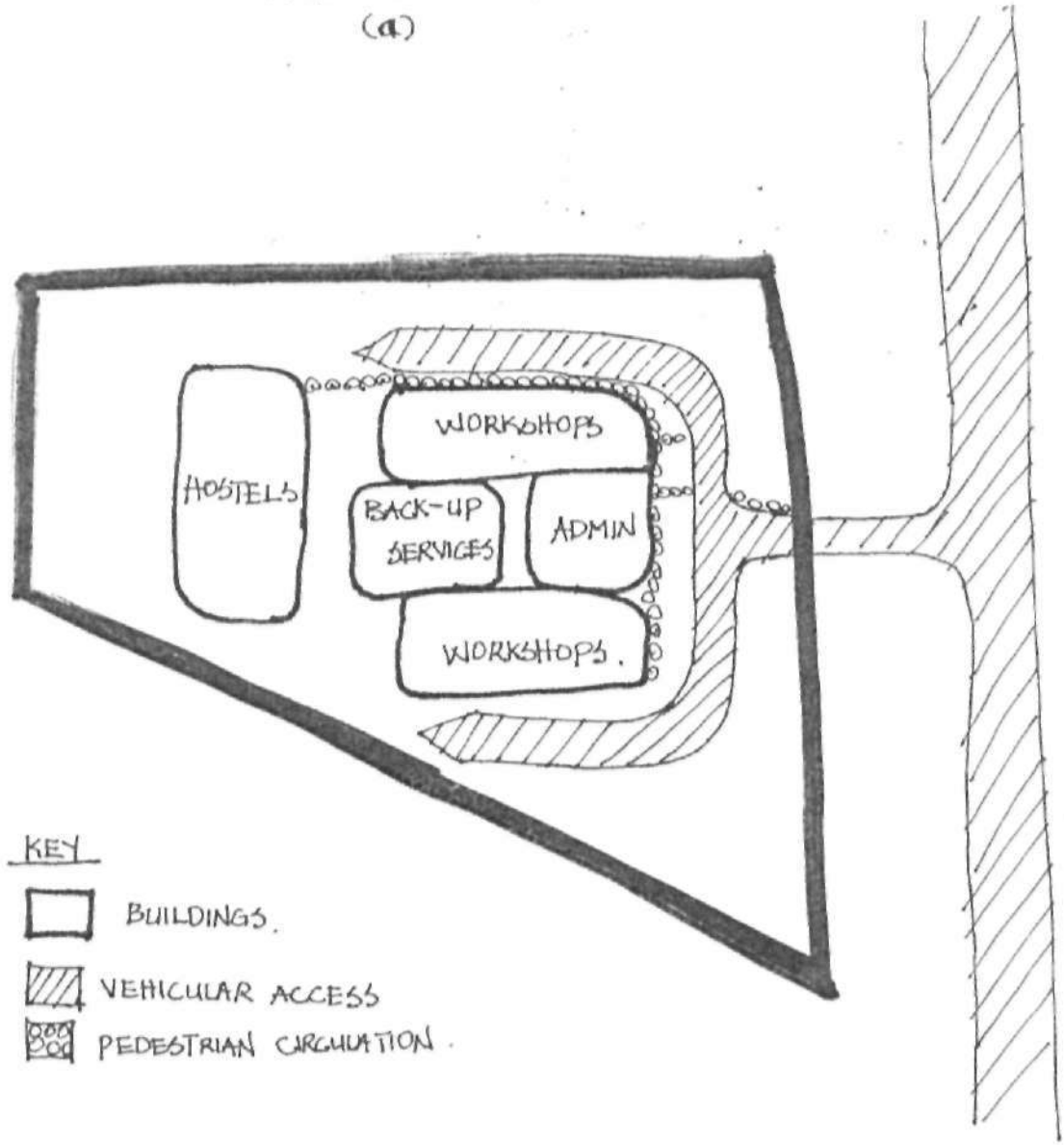
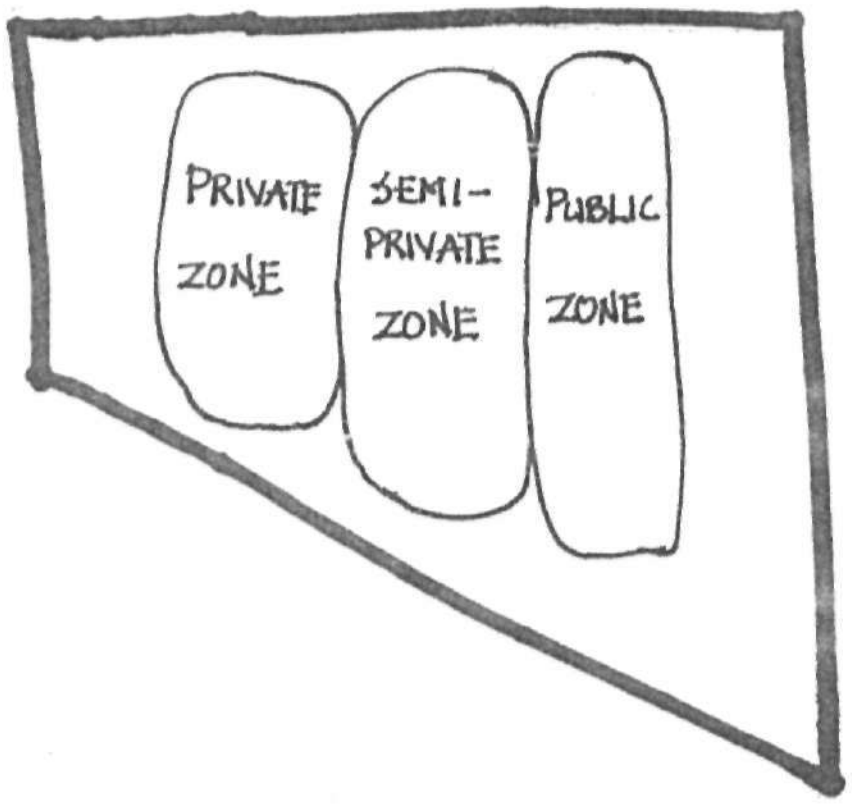
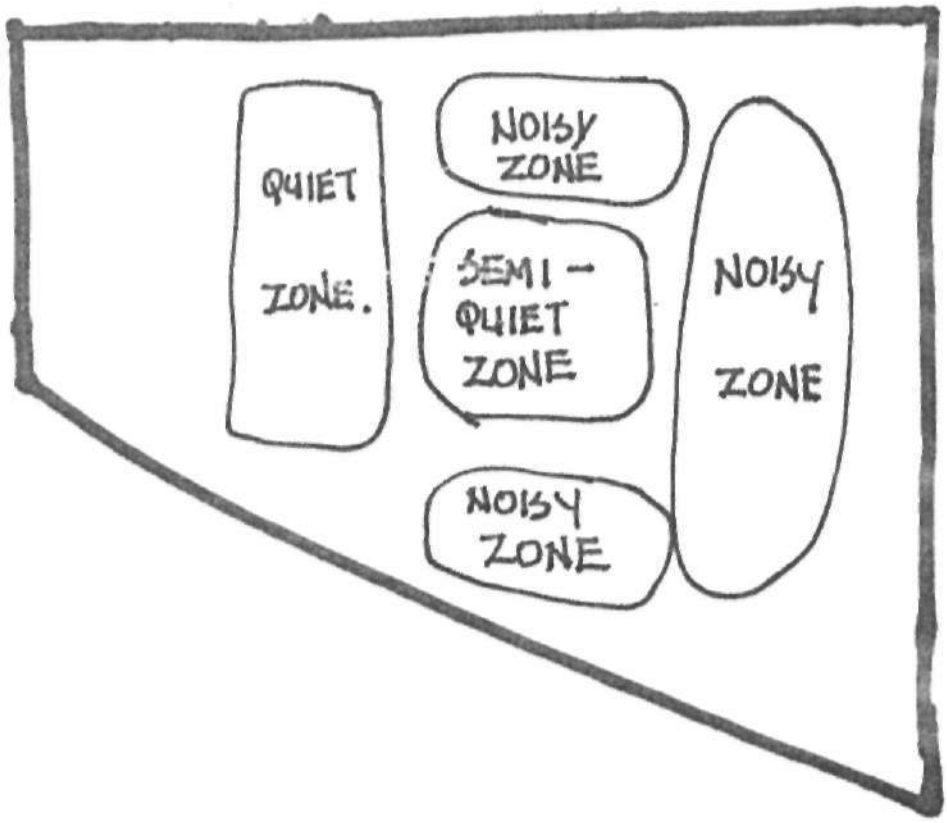
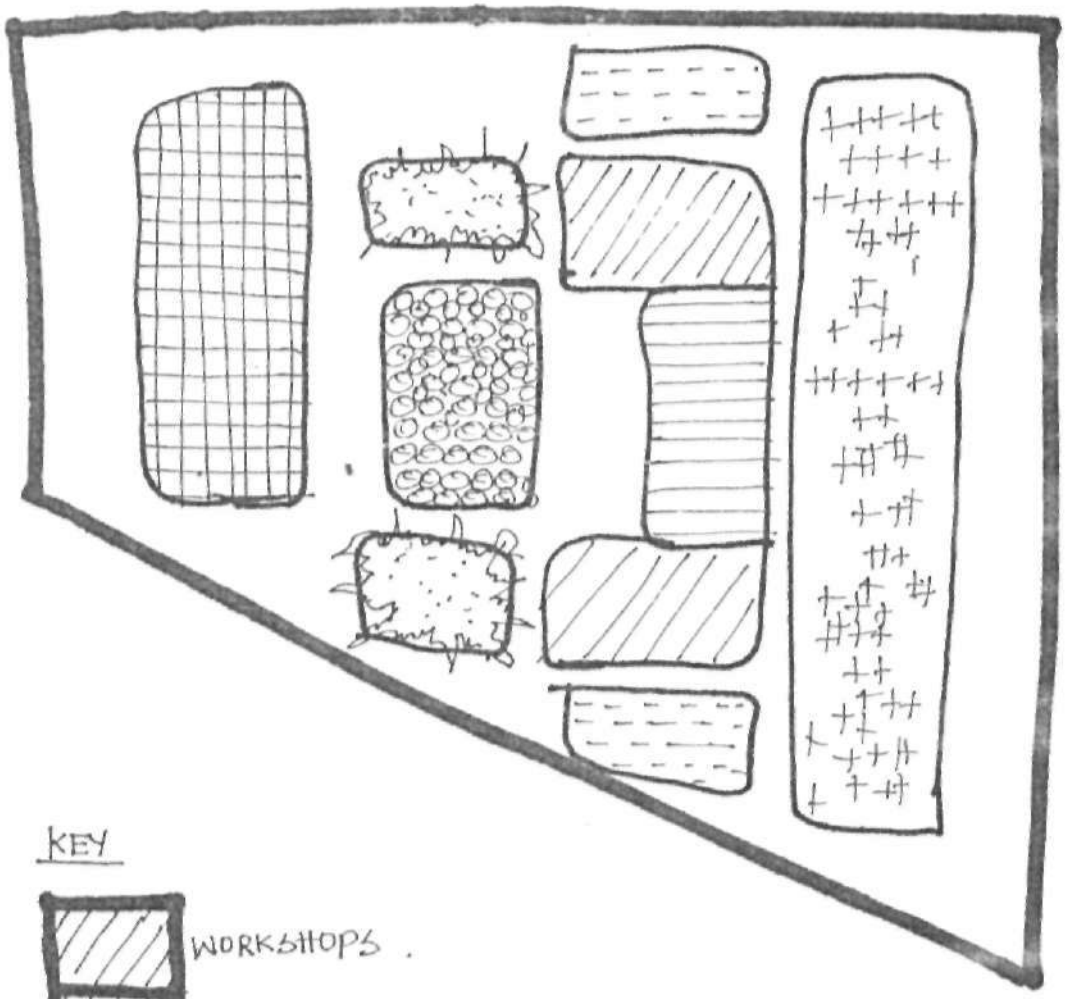


Fig.7.2: Site Concept (b)



NOISE ZONING.





KEY



WORKSHOPS .

HOSTELS

BACK-UP SERVICES.

PARKING .

LANDSCAPED RECREATION

ADMIN

FUTURE EXPANSION .

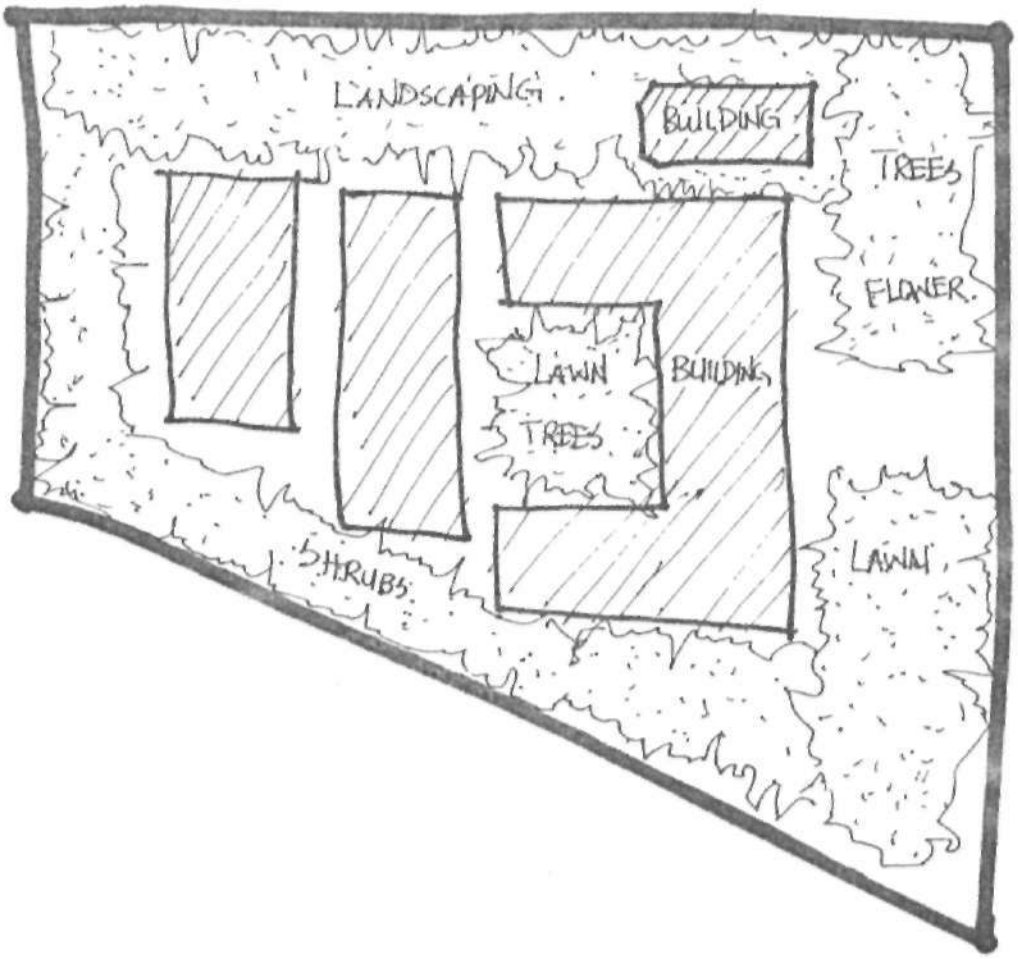


Fig. 7.3: Site Concept (c) LANSCAPING.

7.4 Site Concept Development

The organization and planning of the site was influenced by the following factors.

a) Access and vehicular circulation

b) Pedestrian circulation

c) Training activities

d) Social facilities provided for public use

e) Access for production activities

f) Zoning for public and private areas

(see fig. 7.3)

7.5 Summary

The proposed site was selected as a result of its being next to the mental health rehabilitation center. The opinion of architects sampled was that it would be better within the same area rather than being scattered over the city. This was the strongest reason for selecting the site as against the one at Dula. The designer has taken full advantage of the good points of the site to create interesting contributions to the architecture of the area.

CHAPTER EIGHT : DESIGN REPORT

8.0 Introduction

The sub-topic for this thesis research project states;"towards an appropriate environment for the disabled". Why talk of an appropriated environment in a building design? In every building, it is expected that the environment within and without should be appropriate to meet the needs of the users thus it seems that achieving an appropriate environments is not a problem. However, it has been said by Dixon(1978) that the problem of disabled people is mainly architectural. This statement does not portray architecture as a problem but as a solution to the physical environmental problems of the disabled. When the possibilities design are not explored, then the architecture proposed becomes the problem of the disabled since their needs were not included in the requirements of the design. When designing possibilities are explored, solutions can be proffered to the barriers on the path of the disabled users of facilities. An appropriate environment therefore is taken in this text, to mean the environmental conditions within and outside a building including all the building elements and facilities that poses no problem or difficulty of use to the disabled and non-disabled alike.

8.1 Design Scope

The proposed crafts center for the disabled is intended to be a vocational rehabilitation center. The center is more vocational than therapeutic in its approach although mini-health

facilities were provided on the site. The center is proposed to assist the disabled folk within the scope of the study to develop certain skills that will help to establish them and increase their chance of making a living. It has been stated earlier that the scope of users are the blind and the crippled. However, since the environment has been designed to accommodate all the basic types of disabilities, decisions in future to include other classes of people will not be limited. Also, since the visually and mobility impaired people are the ones who have major problems with movement and use of facilities, the other classes will be able to fit in without any alterations in the design apart from inclusions.

8.2 *Rehabilitation Procedure*

An outline for the general procedures expected to be followed by the operators and users of the center as conceived by the author and understood from study of other similar institutions is given below;

After new students have been admitted into the institution, registration processes begin. The trainee is counseled by the guidance and counseling unit staff and assessment of the individual concerned is made based on his/her physical, mental and psychological state. Information about the trainee will be gathered from the trainee himself or his guardian.

The individual with the help of the counselor then selects areas of interest as per crafts to be learned or majored in. The first session will allow the participants to have a taste of all the programs run on a peripheral level in order to allow each individual develop his/her skills in the area of inclination. The second session however must be run with students splitting into various study groups to learn related crafts of interest at a full blown level and in greater details. After the two years of training, the trainees are expected to have mastered at least two trades from the center. Displays are carried out from time to time to make the public aware of these possibilities. After training and rehabilitation, graduated members are allowed to practice with their certificates. The center has within its proposal also a concept known popularly as the sheltered workshops. This was the name initially given to facilities provided for disabled folks in the

community where various crafts are practiced and productions are made for public consumption on a small scale industrial pattern. It serves as a day institution.

The facility provided within the center serves also in a similar manner as the sheltered workshops. The workshops are provided for the employment of skilled people with disabilities who have not been able to fix themselves up in any of the organizations or industries in the society. They are given opportunity for employment as production staff in this small cottage industry and the various facilities required here are provided also. Graduates from the training sections of the center who so wish can be employed in the production section. This was created in order to advance the public awareness of such a center and attract buyers of items produced there such that in the future, the center will be mainly known more as a successful crafts center than as a rehabilitation center. Funds can also be generated from this unit if judiciously monitored, for the running and maintenance of the center.

Graduates can also be employed as consultants and supervisors in the center in future.

8.3 Site Plan

Since the site is bounded by a major road on the east side, the access road is tapped from this source. The access road is carried into the site and then it divides into two towards the main entrance. One to the south and one to the northern side of the site. The one to the south serves the parking spaces for staff and visitors and it also leads to the drop-off under a canopy for protection. The other part of the road leads to the northern side of the site to service the auditorium parking spaces, the loading and off-loading bay for the production unit and the health and welfare facilities behind in the private areas. Care is taken to avoid dangerous crossings for pedestrian. Pedestrian access is taken from the entrance gate to all parts of the center. The walkways are covered to provide protection for the users especially against rainfall.

The part of the building on the site that is first encountered is the administrative area. Emphasis was placed on the design of the entrance to make it easy for first time visitors to know which direction to face as the road parts into two. Flanking the two sides of the administrative

block are the workshops, the training workshop on the south while the production workshops are on the north. These two are accessible by both pedestrians and vehicular paths from the entrances. All these parts form one block that closes in around an inverted V-Shaped court yard which terminates at the health and canteen facilities provided for the production workers. The accommodation units are then located in a cluster form at the rear part of the site as it is a culture of the people of Kano to cluster their houses to perpetuate a community type of living.

The multi-purpose theatre was located somewhat detached from the other building but linked by roadways and walkways. This was done to facilitate public use without going to the more private area of the site. A landscaped relaxation area was provided around the theatre to provide spaces for seating and relaxation during break times when seminars take place in the theatre. At other times, users can visit the place when there is need for solitude and relaxation in the outdoor environment.

8.3.1 Site Functional Relationships

The basic units on the site are as follows:

- Entrance/Parking
- Administrative block
- Workshops(training)
- Workshops(production)
- Health/cafeteria facilities
- Multi-purpose theatre
- Accommodation

It is required that these spaces relate to one another functionally with the aim of achieving working procedures uninterrupted by one function or the other, that is, no function should occur in an out-of-place manner. Therefore, facilities that need relationships, that is, having people move between them often have been located close together and easily linked by

walkways.

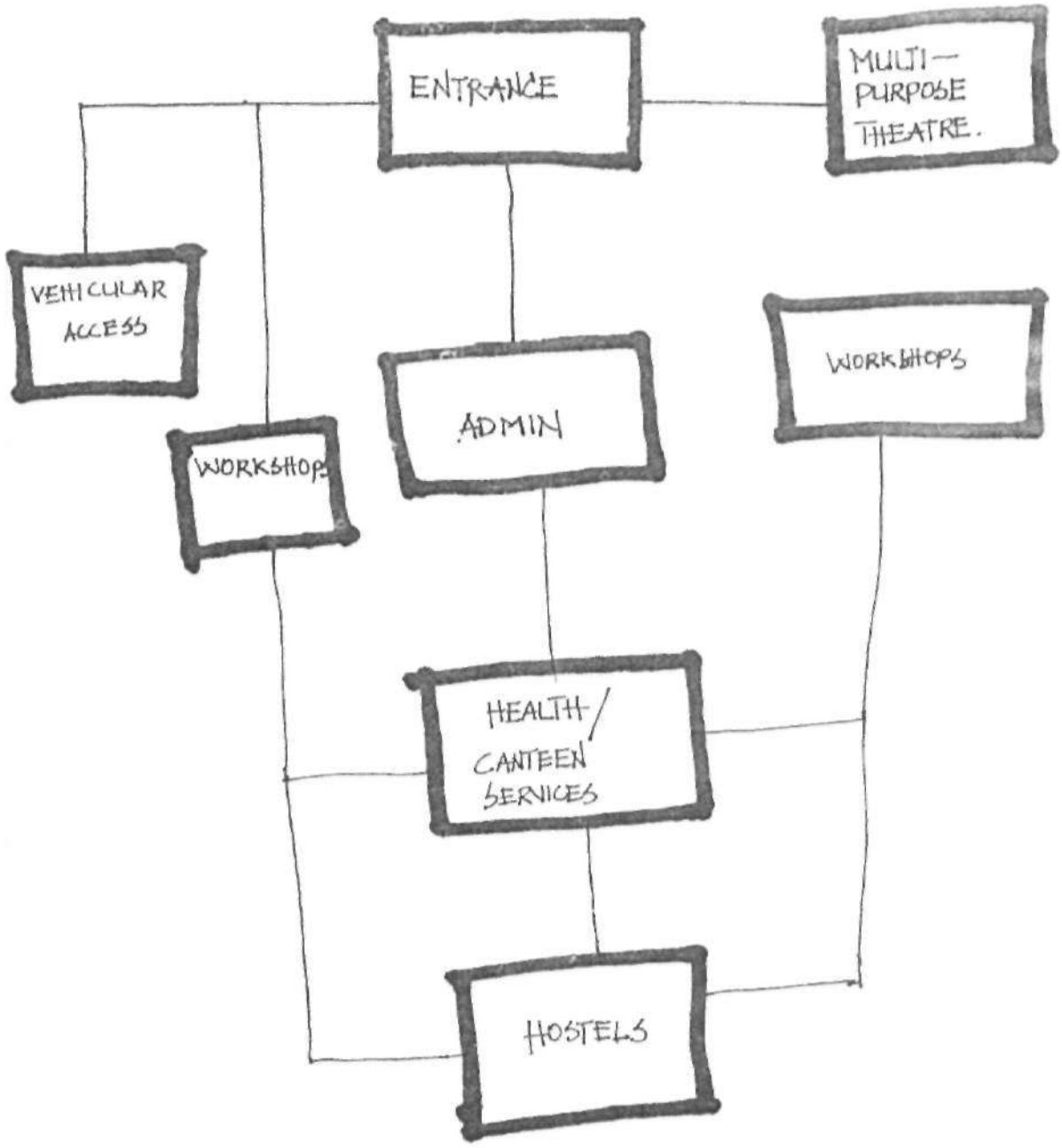
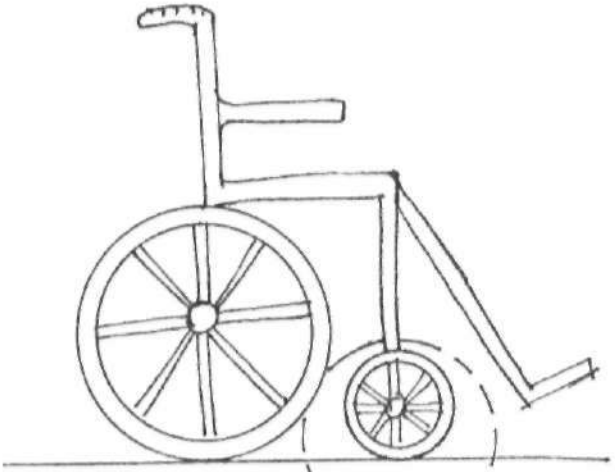


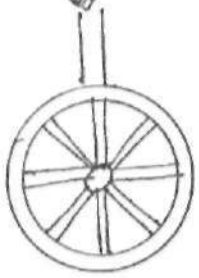
Fig.8.1 ;Site functional relationships

8.4 Plan Concept Development

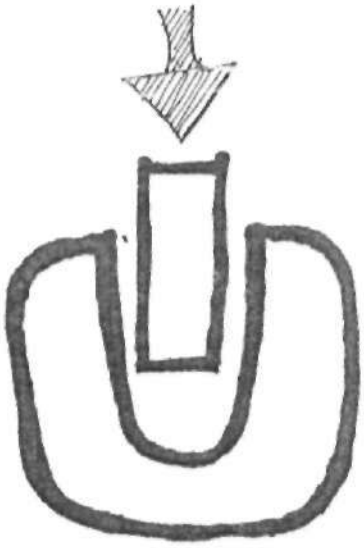
The initial idea at the beginning of the design was to have an axial concept whereby, functions can flow along two adjacent linear axes. This concept was chosen because of its simplicity and its allowance for expansion. A form concept was also evolved to be merged with this axial concept. This is the wheelchair front wheel concept. The front wheel of the chair has a rod running vertically downward into the small wheel. This was the form concept adopted and developed as shown in figure 8.2



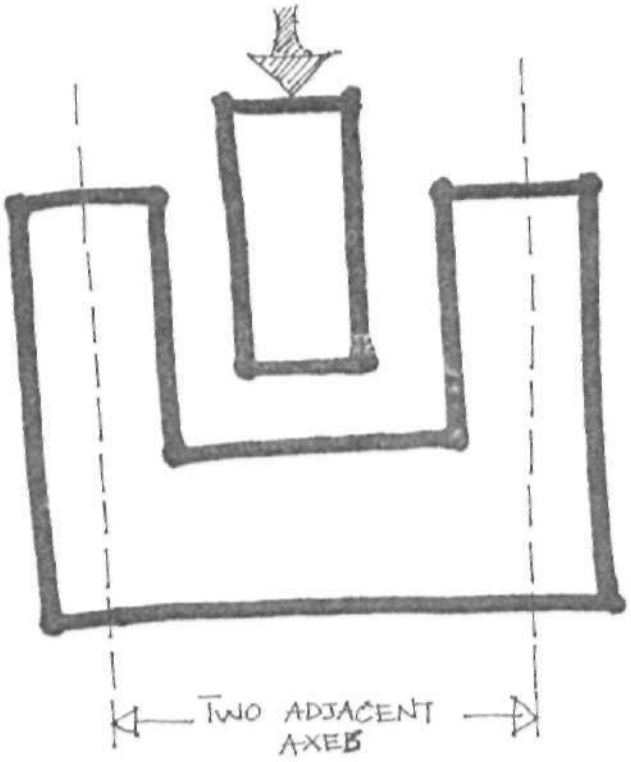
WHEELCHAIR



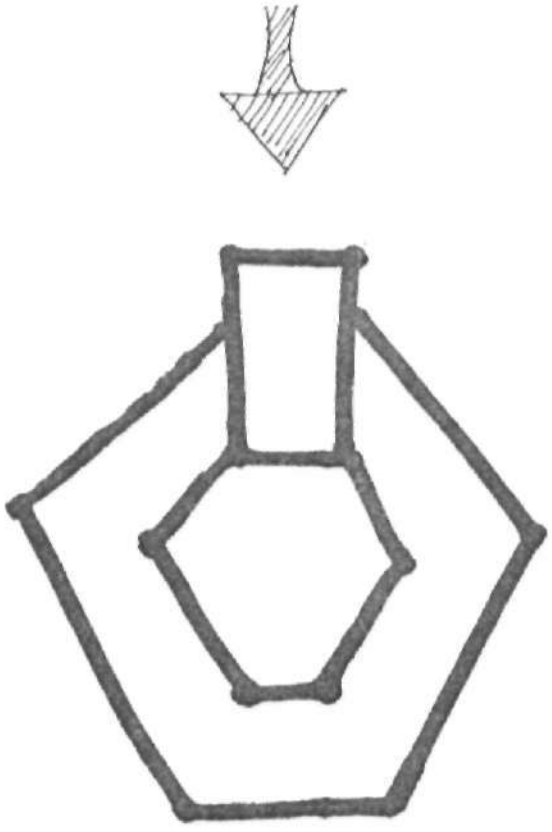
FRONT WHEEL OF THE CHAIR.



CIRCULAR CONCEPT NOT CONVENIENT FOR WHEELCHAIR THUS THE CURVES WERE STRAIGHTENED OUT.



THIS STAGE STILL ACHIEVES THE INITIAL AXIAL CONCEPT WITH FUNCTIONS SPREADING ALONG TWO MAJOR LINEAR AXES.



FINAL CONCEPT WAS ADOPTED FOR A MORE COMPACT PLAN.

Fig. 8.2;Concept Development.

8.4.1 Administrative Block

This area provides accommodation for the administrative staff of both the training and the production units of the center. Although, they are in one block, there is little relationship between the two and movement is channeled along related areas.

The first part of this block is the entrance canopy designed using the concrete folded plate structure. This serves as the focal point of the design.

The reception and the display rooms flank the entrance lobby on the left and on the right respectively. The left corridor leads to the offices for administrative staff, staff room, staff lounge, class rooms all around a small courtyard that leads to the larger courtyard. The right wing leads to the director's office and offices for the staff. The conference room and toilet facilities are on this side of the block. The small courtyard, symmetrical with the one on the left wing leads to the small administrative area carved out for the cottage industry. This accommodates the production manager, the showroom and offices for sales and administration. There is a small outlet into the entrance area for those who will come directly to this unit. The larger courtyard leads into the workshop areas.

8.4.2 Training Workshop

These lie to the left wing of the administrative block and are accessed by a walkway from the small courtyard. They contain training workshops for ceramic, textile, calabash, cane and raffia, leather, metal and carpentry crafts. The training workshops are furnished with tables and seats adjusted to the needs of the users and small machines introduced to aid the handicraft. Such machines include sowing machines, potters wheel, kilns etc. These workshops are around a courtyard for outdoor activities, lighting and copious ventilation. Changing rooms with lockers and toilet and shower facilities are provided.

8.4.3 Production Workshops

This area is on the right side of the administrative block. It opens an entrance for the

service road to allow easy loading and off-loading that takes place frequently. It has the same composition and structure as the training workshops but differs in the sense that it will be furnished with more machines to aid faster production and the volume of people within it will be reduced and replaced by machines.

8.4.4. Multi-purpose theatre

This lies detatched from the other structure towards the far right from the entrance. It is visible as one enters the site and is accessed by a road and a walkway. This theatre is designed to seat 300 persons. The stage has been made accessible for wheelchair users. There is a backstage room for changing and an exit backstage.

The theatre is racked with a ramp slopping at 1:15 ratio. At the back of the audience is a room that doubles as a control and projector room. The surroundings of the theatre is landscaped and provided with seats for leisure or relaxation.

8.4.5 Health/Cafeteria

The health services include a doctors/consultants room, a card room, waiting area, treatment room and a rest room. The minor therapy space has been provided for just that purpose. It may be physical or mental therapy. The cafeteria serves the light production unit during break time.

8.4.6 Accommodation

This is the hostel cluster. Each block contains 12 rooms, with six(6) clustering around a courtyard and having access to their own toilet and shower facilities. Two (2) blocks of six rooms are linked by another unit which contains the common room and the care-taker's lodgings. The caretaker is provided with a living room, bedroom, kitchen, toilet and bathroom.

8.5 Structure and Finishes

The load-bearing walls and columns were provided in most parts within the complex with the simple roofing structure of wood. In the workshops, steel trusses are used for roofing to achieve uninterrupted spaces within the rooms. The theatre also has a steel truss roofing system with reinforced concrete columns acting as the supports at the bottom.

The floor spaces are finished with terrazzo flooring system to resist wear and to give aesthetics. Walls are finished with emulsion paints within while textcote paints are used on the outside. The workshop floors are treated with the non-slip cement sand screed flooring materials. This is also the case with the walkways except where slabs are used. Asbestos ceiling boards are used in combination with suspended ceilings, depending on the importance of the space.

8.6 Summary

The concept of the design for the crafts center has been described in this chapter and the development of that concept into design was followed. The various parts of the design described and the relationship of one part the other given. specifications for construction materials have also been considered and mentioned in the report.

CHAPTER NINE : CONCLUSION AND RECCOMMENDATIONS

The influence of the built environment on human activity in general cannot be over-emphasized. The ability to live independently, and take part in all activities of life that an individual desires is often determined by the built environment, thus the environment contributes to happiness and fulfillment in life. This statement also applies to the people with disabilities of one form or the other.

People with visual and mobility impairments are those that are most affected by the built environment because of their inability to move as other people do. Facilities have been provided as an attempt to solve the problems of the disabled especially in the Nigerian context. These attempts are still far from being successful at making the community home for the disabled. Rehabilitation attempts to train the rehabilitees to adapt to their environments and develop ways to overcome their physical barriers placed by designers. However, it is recommended that as in other developed countries, the environment should be designed and adapted to cope with the handicaps of disabled people. This would go beyond providing facilities exclusively for the disabled, rather, a public building will have to become useful to all categories of people with diverse disabilities.

It has also been observed that there is a negative attitude in the general public towards disabilities and people affected by them. It is therefore necessary to create awareness in the public to inform them about this, educate them and remove the negative attitudes or at least reduce it. More information about disabled people and their rights as normal citizens of a country should be disseminated far and wide to erase the feeling that they are lesser mortals.

More research is needed in the design of furniture and fittings that will cater for the needs of the disabled. Architects and interior designers are challenged to take up this aspect of evolving solutions whether within the public space or the home environments.

In the past, attempts at rehabilitation have tried to see how the disabled can be trained to

cope with their disabilities then adapt to their environment. Those parts that cannot be adapted are left as handicaps forever. The basic recommendation from this research is that the environment should be adapted instead of the people. Environment here refers to both the physical and psychological environment. People and places should be changed, informed and adapted to cope with the disabilities of others. Only then can it be said that an appropriate environment has been achieved.

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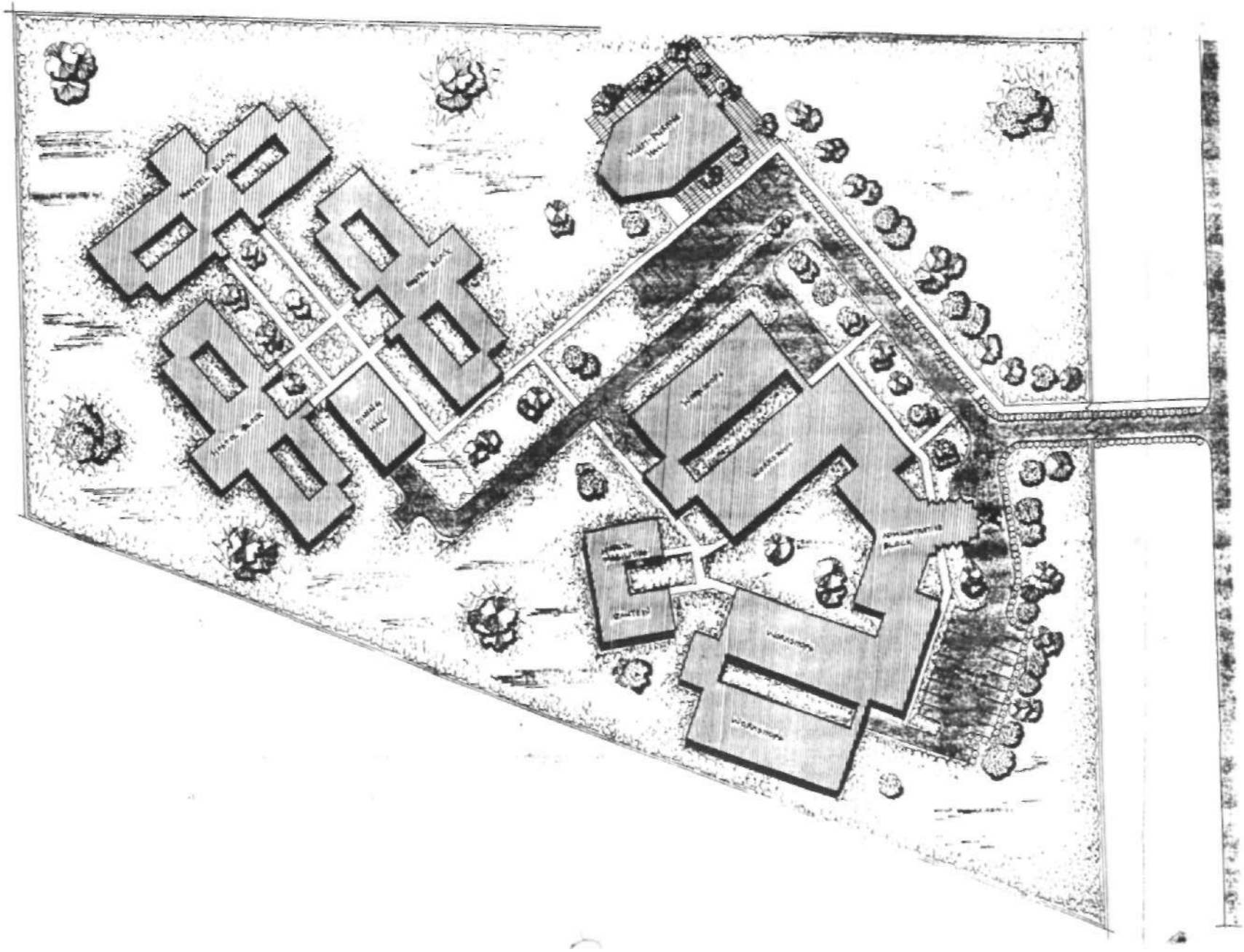
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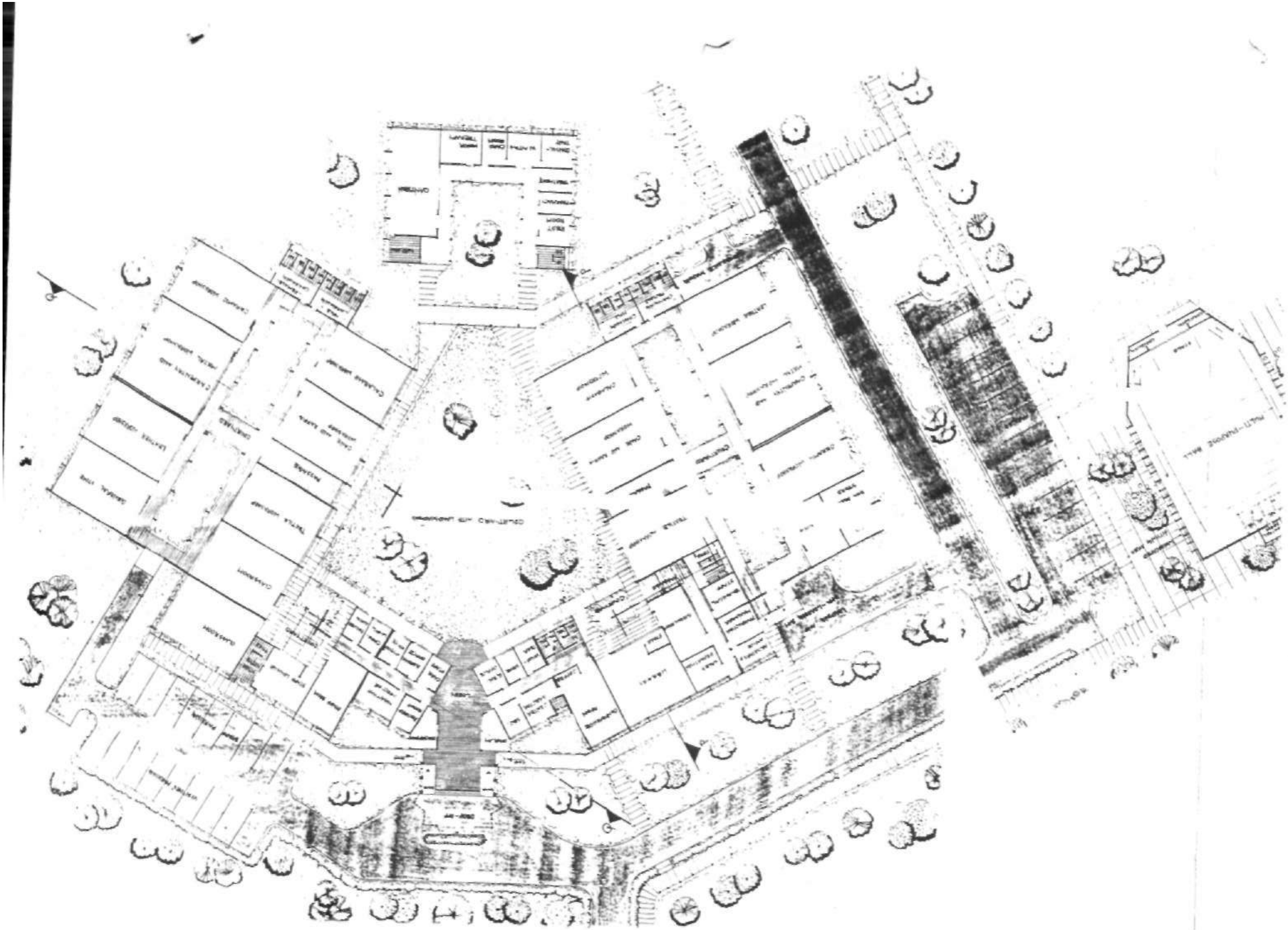
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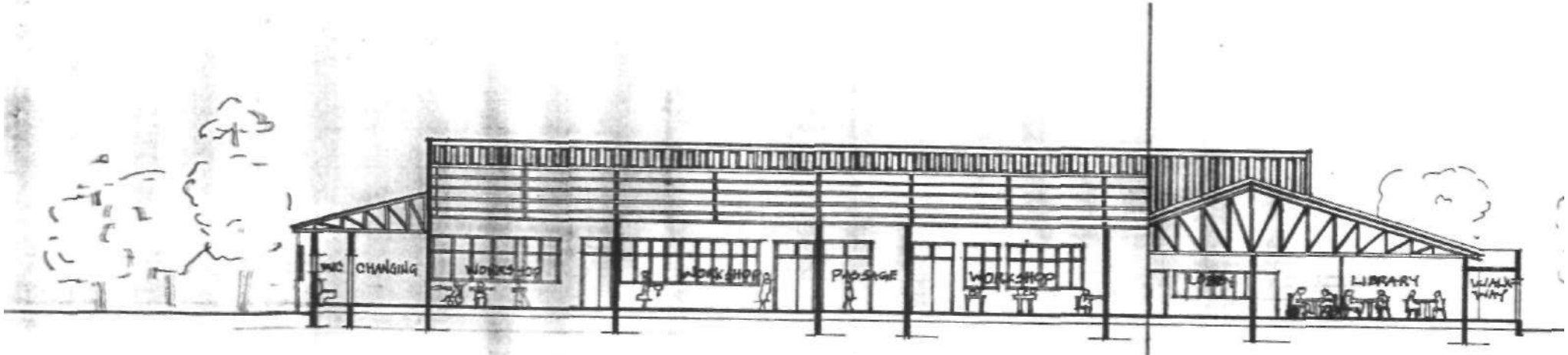
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SITE PLAN



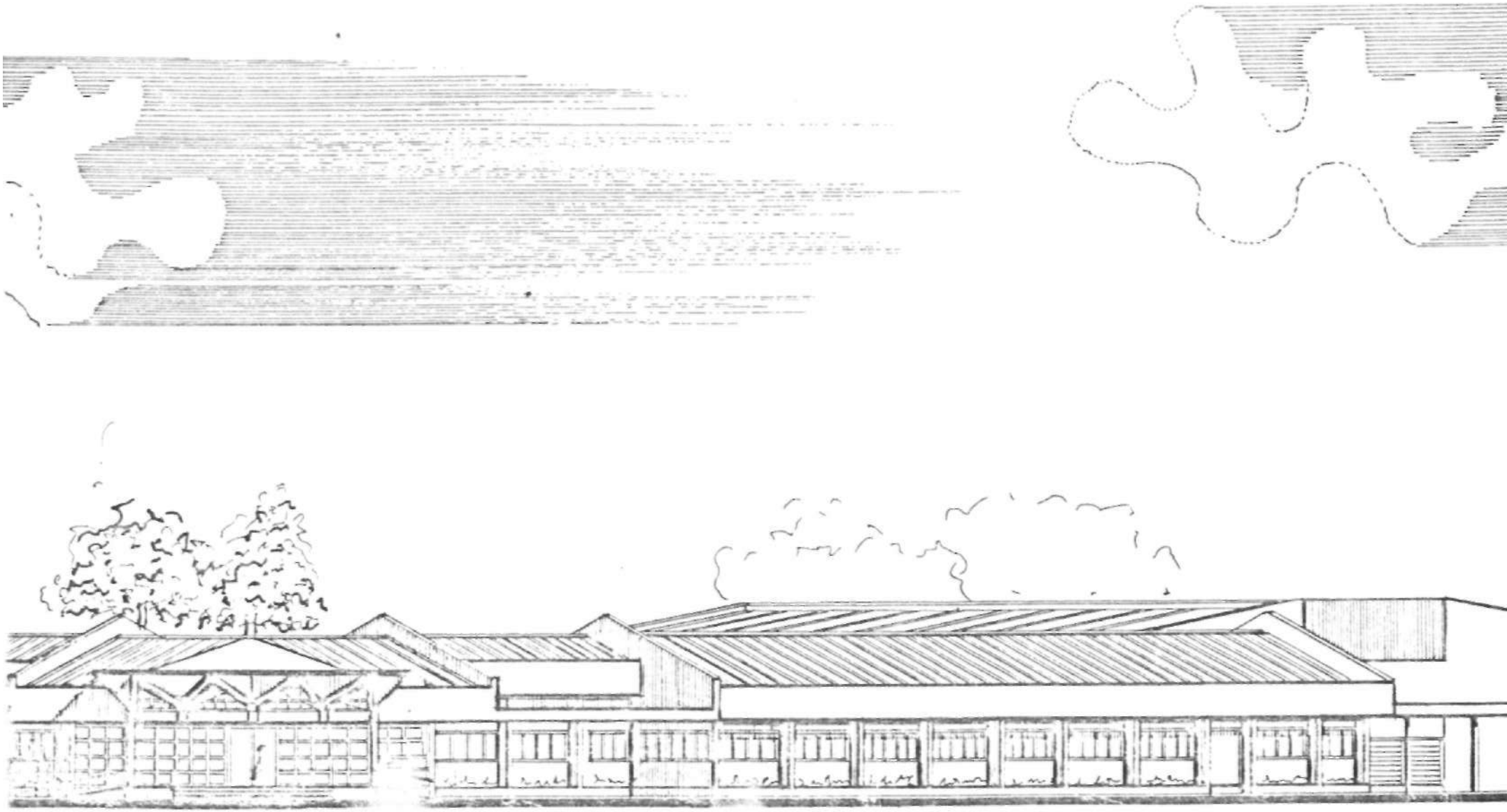


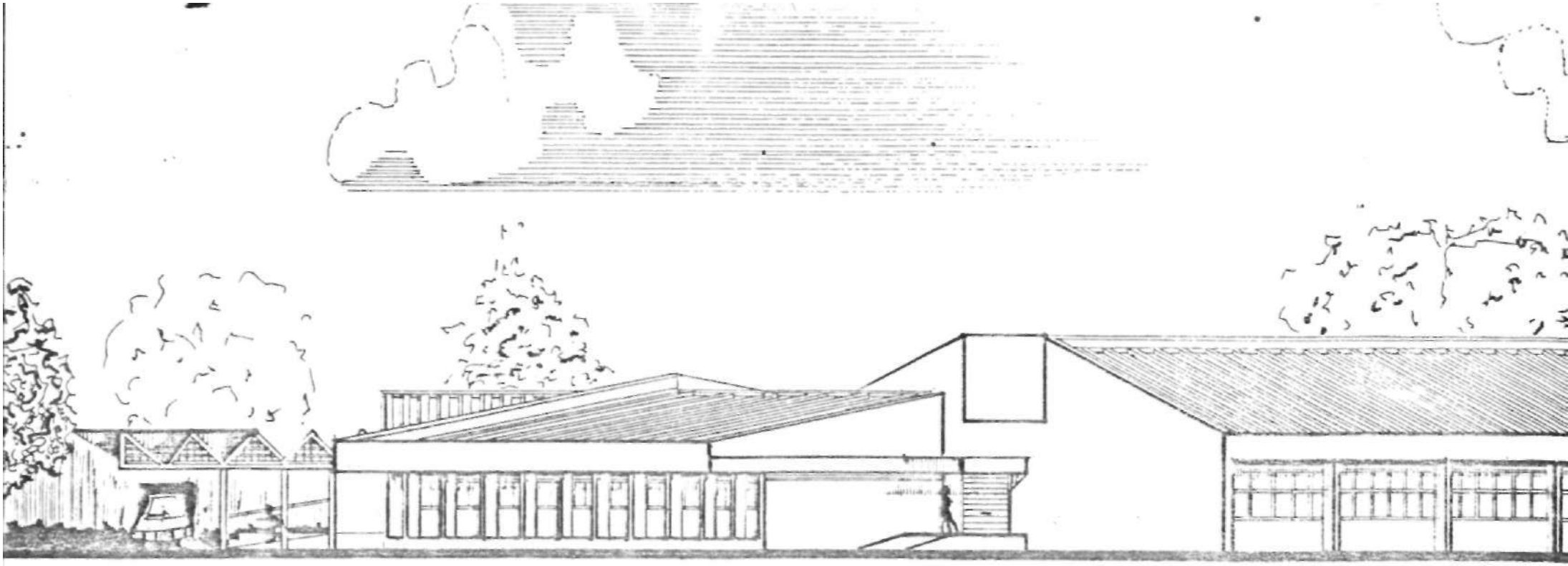


SECTION P - P

Contour for Dishload

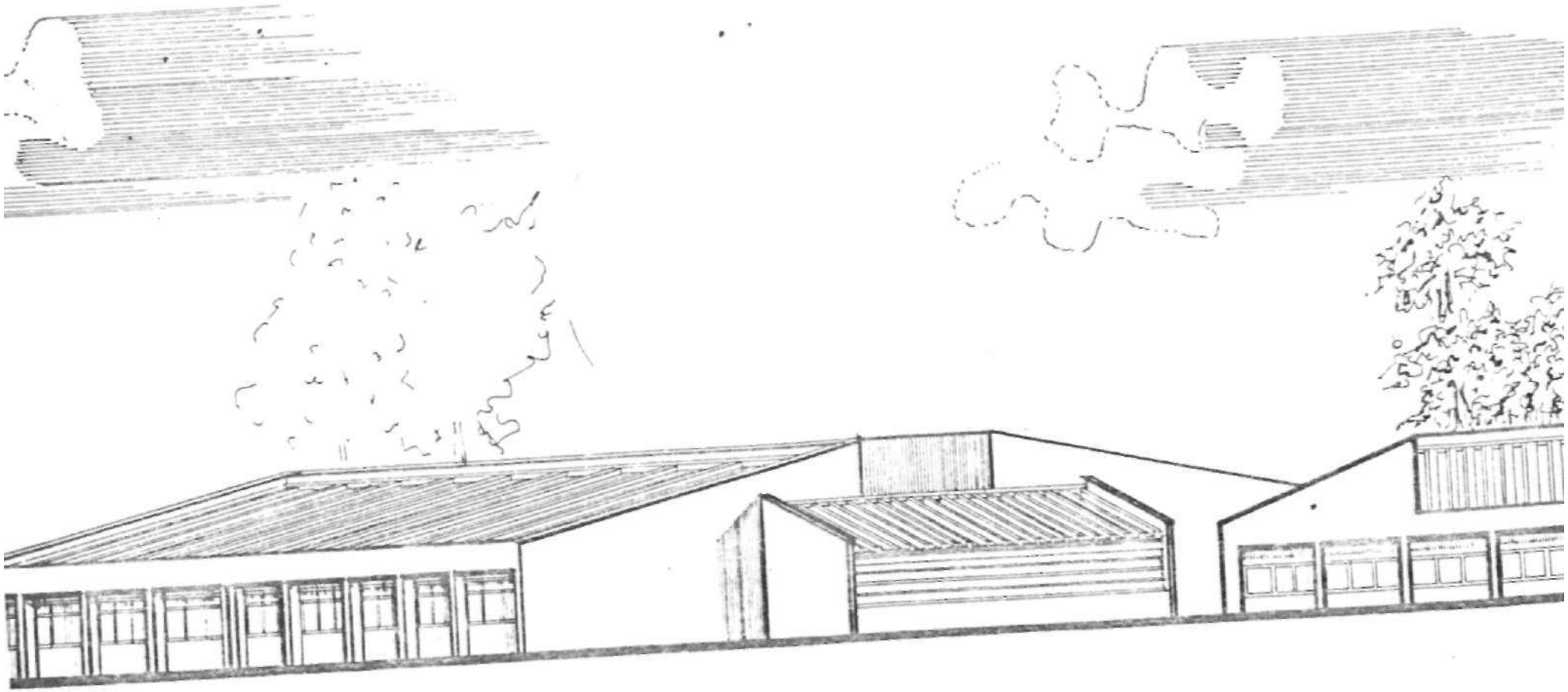
Scale 2 = 1 Meter





TYPICAL SIDE

Crafts Center for Th



SOUTH - WEST ELEVATION

