REHABILITATION CENTRE FOR THE PHYSICALLY DISABLED, KANO

BY

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DECLARATION

I hereby declare that this thesis has been composed by myself and that it is a record of my own initiatives and research. It has not been accepted in any previous studies for the award of a higher degree. All quotations are identified with quotation marks and the sources listed accordingly.

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DEDICATION

. . . . To my late Grandfather,

ALHAJI GARBA S/GADI

(The memories are still afresh in the mind;
I will never forget you. May Allah's
mercy be with you).

ABSTRACT

The rampant occurrences of disabling conditions and the nature and extent these disabilities affect People has become a point of concern in the society. This is more disturbing when it's realized that day after day people are becoming more and more engulfed in this tragic situation as a result of congenital and physical factors. Yet, the manner in which society attempts to accommodate the disabled people is disheartening. This, coupled with lack of proper medical care and vocational opportunities has rendered them helpless, dejected and being looked down upon in the society. To fully reabsorb them into the mainstream line of life, opportunities for self-improvement and conducive environment need to be created.

Rehabilitation can be defined as "a means Of working to find the best way of satisfying the most important needs of the disabled person towards his full integration into the society".

According U.N.0's declaration on Human Rights, the term "Disabled person" means "any person who is unable to ensure by himself/herself wholly or partly, the necessities of a normal person as a result of defeciency either congenital or not, in

ACKNOWLEDGEMENT

I wish to express my gratitude to my parents for all the love, kindness and supports (both financial and otherwise) especially my father for all the efforts put throughout my academic career.

I am greatly indebted to Mallam M. Abdulkarim, my project supervisor, for devoting his time giving constructive criticisms, advice and guidance throughout the various stages of the work.

I also acknowledge with gratitude, the contributions and suggestions received from my friends and colleagues and for the understanding and kindness they show in making my academic life colourful.

In general, my thank goes to my brothers, sisters and the like who directly or indirectly contribute in making this work possible.

May Allah's Mercy and Guidance be with us in all our undertakings. (Amen)

his physical or mental capabilities".

For the purpose of this thesis work, the class of people with physical disabilities of both lower/upper limbs will be considered. As such the centre will comprise of a medical unit, rehabilitation unit, Administrative section, educational and recreational facilities. Since a large portion o of the patients would be admitted on referal basis, the centre is intended to maintain a working ties with other professionally related centres.

The U.N.O. in its proclaimation of the International year of the Disabled Persons (1981) highlights our role to the disabled persons as social equality, prevention integration and rehabilitation. Going by the above criteria, this thesis intends to:-

1. Help disabled people in their physical and psychological adjustments.
2. Reduce and alleviate physical disabilities to the greatest extent possible.

3. Offer opportunities for retraining the person with residueal physical disability "to live and work with the disability but at the hilt of his capabilities."

4. Educate and encourage the public on the rights of the disabled people to participate in the social, economic and political life of the society.

5. Provide a conducive atmosphere that can facilitate a good working condition.

To ignore the development of Rehabilitation Centres then, is to encourage the continued detororiation of the many less severely handicapped until they reach a situation of total dependency. This thesis thus, intends to explore and understand the basic components of rehabilitation process and provide a centre that will solve the problems of the disabled people. This in effect may reduce streeting begging in our midst.

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DEFINITION

Amputation: The removal of the whole or part of a limb.

Amputee: Person who loss limb(s) due to amputation

Arthristis: A general term for condition where there is imflammation of the joints

Ataxia: In Coordination of the locomotor system.

Cerabral Palsy: A variety of injuries causing damage to the brain at birth or faulty development of the growing brain tissues. Its effects are permanent.

Club Foot: A Congenital deformity of the foot and ankle.

Congenital Disabilities: Disability present at birth, or manifest soon afterwards.

Hemiplegia: Paralysis of one side of the body

In Continence: Inability to control movements of either bowels or bladder, or both.

Monoplegia: Paralysis of a single limb.

Multiple Sclorosis: A common organic disease of the central nervous system causing locomotor paralysis, incordination etc.

Muscular Dysthropy: Heridetary diseases causing progressive muscle weakness.

Paraplegia: Total or patial paralysis of both lower limbs.

Paralysis: Loss of mascular control

Poliomyelitis: Virus disease affecting the ante - and brain stem, causing paralysis of the muscles.

Prosthesis: Replacement of an absent natural part by an artificial one - commonly it refers to artificial limbs.

Quadraplegia/Telraplegia: Paralysis of all four limbs cause by an injury or disease to the nervous system in the neck.

Spina bifida: A congenital disability resulting from deformity of the spine and spinal cord of the unborn child. It can cause paralysis of the lower limbs.

Rehabilitees: Disabled individuals who are assisted in a rehabilitation centre.

Rehabilitants:- Disabled people who have been restored to normal activities or gainfully employed.

"Patient": As used in this thesis, refers to a disabled person who is being prescribed and is undergoing a programme in one of the branches of the physical medicine.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

It is a fact that society tends to conceal its moral of obligation towards the plight of its "Forsaken" or 'abandoned' people. Yet an accompanying feeling of guilt and responsibility for the affliction of these less fortunate members of the society is expressed when it comes to acknowledging their social and moral qualities.

Not left out are the lots of beggers and destitutes with one form of disability or the other seen at strategic places like the mosques, market places, shopping centres or such other vantage points, etc or seen on the streets in our major Nigerian towns and cities soliciting for arms.

As many folds unfortunates, the disabled people are supposed to be the number one concern for every one in the society, both governments and individuals alike. But alas, it is only on big occasions that they are remembered to be an emblem of national disgrace and they are thus hurriedly whisked away for immediate but short rehabilitation at places far outside the major cities.

Although these attitudes are gradually changing, however, the governments' (Federal and states) approaches to various rehabilitation scheme is nothing to write home about. The failures are enshrined in the fact that the underlying problems of the disabled are not understood as to institute a programme to accomplish them. No proper attention is given to assess the programmes efficiency instead such attention is devoted to the policy's formulation, implementation than programme outcome. Besides, the services provided in the centres cannot augement all the special needs of the disabled.

All these attitudes shows the token way in which we cater for this neglected section of the populace and how the governments show lack of courage and aptitude to shoulder their responsibilities.

With rampant occurrances of disabling conditions largely due to increased road accidents, highly automated machines, after effects of diseases etc, an urgent need for comprehensive rehabilitation centres in our major Nigerian towns and cities cannot be under estimated.

This rehabilitation centre is aimed at given services to the disabled by both physical

treatment and counselling. The treatment which will employ physical rather than surgical methods, is aimed at improving bones and joints malfunctionings as well as to improve the efficiency of muscle fibres. To broaden its services, the centre will give continued treatment to discharged patients from orthopeadic hospitals as prescribed on them.

Counselling in both social adjustment area and vocational training will be given to the disabled person to assess his potentials and capabilities in areas of vocational training. The training will be for the purpose of re-educating the disabled to his/her trade, development of new skills and so on. As a handful of the users of this centre may be illiterate, facilities for adult education will be provided to help the disabled meet complete requirements of the rehabilitation process.

It is hoped that a disabled ones in this centre will shed off his former costume as beggar/destitute and assume one of a specialist in one form of occupation or the other. This will groom him towards eventual self-employment, or co-operative partnership; a condition far better to begging.

1.2. Motivation

To every living being, wether abled or disabled, "the purpose of his living is to make the most out of his being alive. That's to say realizing his own potential; making use of the talents one is born with and the opportunities and challenges that life afford, to achieve in some measure of personel fulfilment."(1)

In the context of this, such challenges and opportunities to the disabled person render him doubly handicapped; he is handicapped because he does not physically have the capabilities that others have; and secondly, he is perceived by others as being handicapped. The former view will require some few corrections to the physical environment to get rid of his frustrations. The latter however, will entail re-orienting the societal perception towards the disabled.

Whatever his situation, I feel the disabled person needs every opportunity at his door step that will enable him "participate in the busy life of the world"; he needs to get the most that life can offer him.

1.3. Aims and Objectives

To fulfil these motives, the thesis sets out the following aims and objectives:

(1) Reduce and alleviate physical disabilities by helping the crippled regain motor control of the disabled member of his body.

(2) To help the disabled person in his psychological adjustment as well as to overcome his social problems.

(3) To help him in his physical adjustment to his disability by offering opportunities for re-training him to "live and work with the disability but at the hilt of his capababilities".

(4) To offer vocational opportunities to the disabled person that can arouse or stimulate his desire in certain activities.

(5) To assist him put his regained ability to some social and economic use.

(6) To assist him put his regained ability to activities of everyday life.

To effectively achieve a complete rehabilitation programme, outlined above, the medical section offers the following services:-

(1) medical evaluation
(2) Physical and Hydrotherapy services
(3) Occupational therapy services
(4) Social adjustment therapy

while the rehabilitation section offers:-

(1) Vocational counselling
(2) Vocational evaluation
(3) Vocational training
(4) Literacy lessons.

With these brief analysis on the problems of rehabilitation programme in the context of our society, the Author intends to also look into the problems of the disabled people and into the issue of design, planning and details of rehabilitation centres existing both at home and outside.

The thesis is a means of solving not only design problems but also socially related problems. The studies would thus offer the Author the ability to translate this issue of social concern into architectural planning.

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CHAPTER TWO

THE PHYSICALLY DISABLED

A theoretical issue of concern in this thesis work is one partaining to the problem of definition and classification of physically disabled. The various terms used are often misused or misapplied, hence a thorough understanding of the terms will be helpful towards the overall understanding of the physically disabled.

2.1. Definitions

The disabled:- a person is said to be disabled if he is unabled or permanently handicapped from functioning adequately as a normal being . The handicap may be physical e.g. blindness, crippled; mental e.g. mentally ill or social e.g. orphans.

The Handicapped:- Handicapped person is one who is being hindered in achieving some specific goals as a result of certain obstacles.

2.1.1. 'Disability' and 'Handicap': Basic relationship:-

'Disability' and 'Handicap' are not

synonymous words. A disabled person is not automatically a handicapped person. Whether or not he is handicapped, depends on the nature of the impairment and the circumstances he is placed.

Various definitions of these two terms were given. According to Amelia Havris, Disablement means "the loss or reduction of functional ability" while Handicap is "the disadvantage or restriction of activity caused by disability".[1] By Beatrice Wright's(1960) definition, disability means "a condition of impairment that can usually be identified or described by a physician", while handicap is "the comulative result of obstacles which disability interposes between individuals and his maximum functional level".[2]

Although disability is only measurable in terms of handicappedness, however, handicap is never, or ever, simply a function of disability. It is determined by the degree of disability along with the whole spectrum of environmental influences.

To give some examples; a chair-bound person is not handicapped if what he wishes to do can be managed from a wheelchair without difficulty ; a blind person is handicapped if he is doing work for which he is necessary to see.

For the purpose of clarification, this precept needs to be emphasized: physical disability is a handicap only where it constitutes a barrier to the achievement of specific goals.

2.1.2. 'Disability' and 'Handicap':-
Architectural definition

It is impossible tc attach any operative definition to the concept of disability and Handicap. However, since the people concerned in this thesis work can be regarded as those unable to use building on account of their disability, an architectural definition could be of help.
On the context of this, Beatrice Wright's definition can be paraphrased to define the terms.

Disabled people:- They are those who on account of their disability are handicapped in the use of building due to lack of suitable facilities.

Handicap:- This is the comulative result of the obstacles which lack of suitable facilities in building inter poses between an individual and his maximum functional level.

These lack of suitable facilities could mean barriers like lack of rails besides Wc, an excessive distance to walk from car to building entrance or light switches being high etc. In the application of this definition, the variable is thus the characteristics of building he uses or wishes to use.

2.2.0 Classification of physically disabled

Among the various indices used to classify the physically disabled people is that according to NATURE and EXTENT of the disabilities. In the former group, there are three groups:

AMBULANT DISABLED

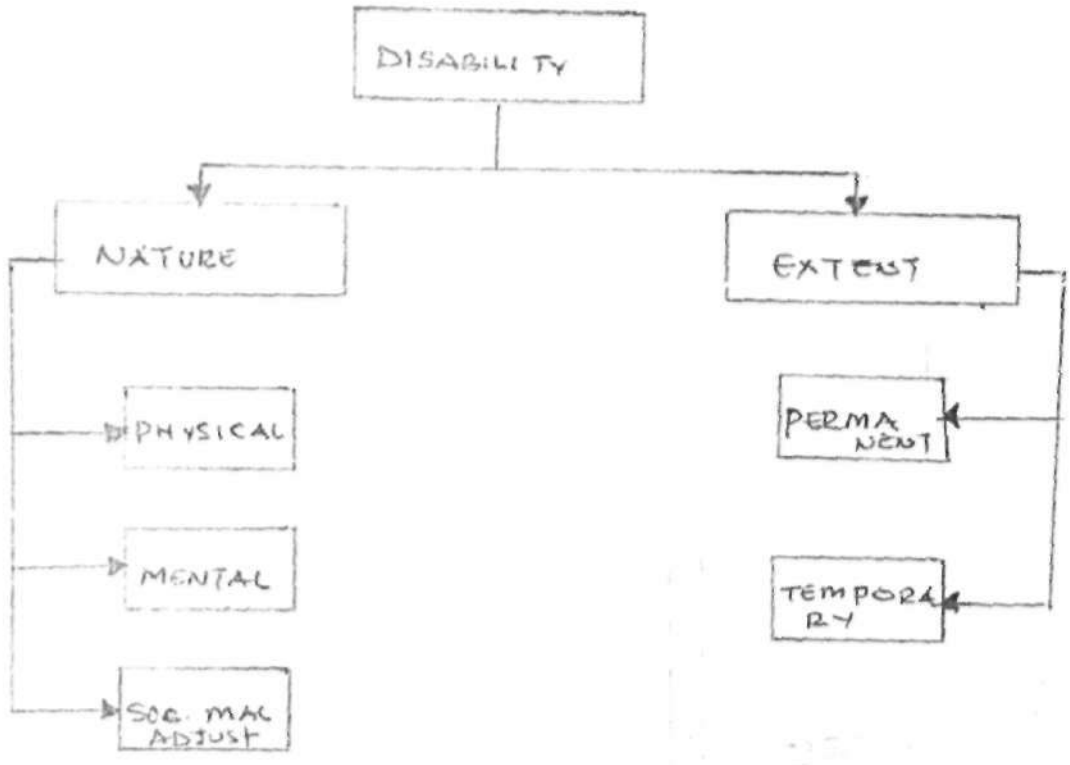
SEMI - AMBULANT DISABLED

NON - AMBULANT DISABLED.

In the latter group the disabilities are:-

TEMPORARY

PERMANENT



2.2.1. The Ambulant Disabled

They are those whose power of locomotion is not seriously impaired. They mostly use sticks, crutches, braces, and other walking aids. They can even move without aid. They mostly have:-

(1) circulatory, respiratory or locomotory defects
(2) prosthesis or orthotics appliances
(3) manipulatory impairment
(4) impaired vision
(5) impaired hearing

2.2.2. Semi - Ambulant Disabled

Thye are those whose power of locomotion is so serious that it entails the use of external aids. They mostly use sticks, elbow crutches, armpit crutches, tripod or wheel frames.

Due to their impairement, they are often unable or hardly able to:-

(1) Stand by themselves
(2) sit down
(3) get up from sitting position.

2.2.3. The Non-Ambulant Disabled.

This class of the disabled have power of locomotion so impaired that they are unable or hardly able to walk or stand by themselves without any aid. Such aids are mostly wheelchairs propelled independently or with the help of an attendent.

The independent Non - Ambulant disabled can move in a wheel chair propelled by means of hand-ring , or in an electric chair .where the person retains sufficient functional ability in his arms.

The attendant propelled Non-Ambulant disabled cannot move by himself unless assisted by an attendant.

2.3. Classification by Extent of Disability

This categorization classifies disabling conditions into the extent of effect. On this basis there are two classes:-

TEMPORARY

PERMANENT

2.3.1. Temporary Disabilities

As the name suggests, this type of disability is temporary in the sense that chances exists for the person involved to be treated though he will be left with a residual effect. Such type of condition is amputation of one of the limbs.

Temporary disabilities may be caused by any of the following causes:-

(1) Accident

(2) Diseases

(3) Injuries at birth

2.3.2. Permanent Disabilities

These types of disabilities are so severe that chances of person recovery or gaining a fraction of his functional ability are slim. They are mostly caused by:-

(1) Congenital Malformation

(2) Natural aging process

(3) Trawma

(4) Impaitance.

2.4.0 Causes of Disabilities

The major causes of disabling conditions can be grouped into:-

ACCIDENT RELATED

DISEASES

NATURAL AGEING PROCESS

DRUGS AND ALCOHOL RELATED

MALNUTRITION

CONGENITAL MALFORMATION

Common disabilities arising as a result of these causes are:-

(1) Limb Disabilities - These are physical disabilities affecting limbs leading to crippling condition.

(2) Dumbness

(3) Deafness

(4) Blindness

(5) Mental illness

The thesis addresses itself to those disabilities of lower and upper limbs i.e. to the lames and maims.

2.5. The Disabilities of the Limbs

As earlier on emphasized, the thesis work concerns itself to the disabilities of the limbs.

Various disorders of the limbs are responsible for the crippling effect to an individual . Generally, people with limb disabilities cannot ensure by themselves, partially or completely, adequate manupulatory or locomotory functions. Thus, they mostly require an external aid in order to stand, sit, get-up or move about.

2.3.1. Causes of Limb Disorders

Generally speaking, conditions resulting to disorders of the limbs can either be ORTHOPEADIC or NEUROLOGICAL.

Orthopeadic Related Causes

These conditions or diseases mostly are associated with inflammation, degeneration or imperfect development of joints muscles or bones. Some of them are:-

(1) Tumors

Bone tumors

Bone cysts.

(2) Congenital Anomalies

Congenital Amputation

Club foot

Congenital Dislocation

Arthrogryposis.

(3) Others

Fragile bone

Mascular asthrophy

Mascular Dysthrophy

(4) Arthristis

Neurological causes

These conditions or diseases are thus called because they mostly effect the central nervous system directly or indirectly in most cases deforming, degenerating or making it imperfectly developed.

Some common causes are:-

(1) Cerabral palsy
(2) Spina Bifida
(3) Poliomegelitis
(4) Multiple sclerosis.

Some of the crippling conditions resulting from these diseases are:-

(1) Monopelgia
(2) Parapelgia
(3) Hemipelgia
(4) Tripelgia
(5) Quadripelgia
(6) Amputation.

2.5.2. Classification by type of Mobility

People with limbs disorders can be classified according to the type of mobility or walking aid they use into:-

(1) Ambulant without a wheelchair (uses crutches, braces, sticks etc)

(2) Ambulant with wheelchair

(3) Semi - Ambulant with wheel chair

(4) Non-Ambulant alone in wheelchair

(5) Non-Ambulant in a wheelchair and with attendent.

2.5.3. Mobility Aids to the Limb Disabled

(1) Walking sticks

a) single point

b) Tripod

c) quadruped

(2) Crutches

a) Auxilliary crutch

b) elbow crutch

c) forearm bearing crutch.

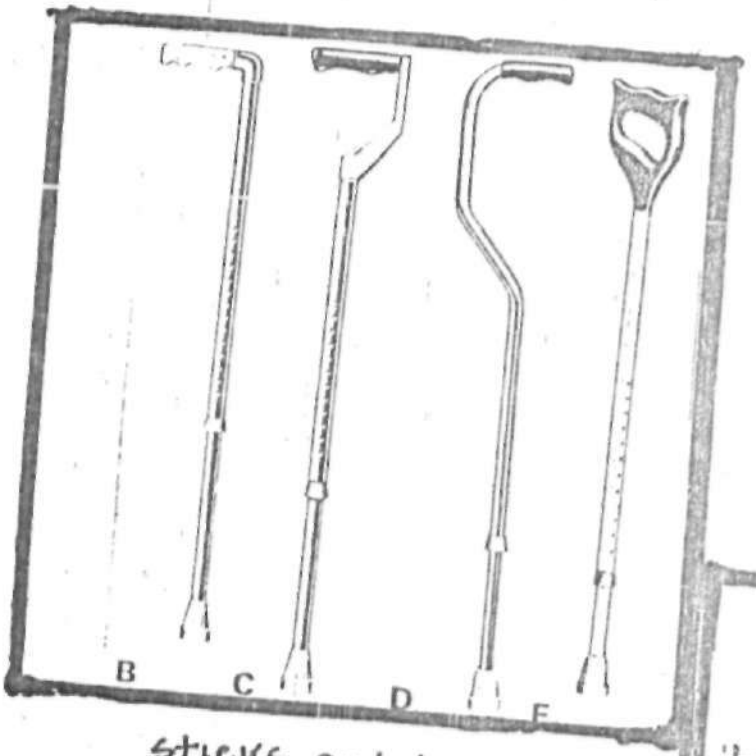
(3) Frames

B Wheel chair

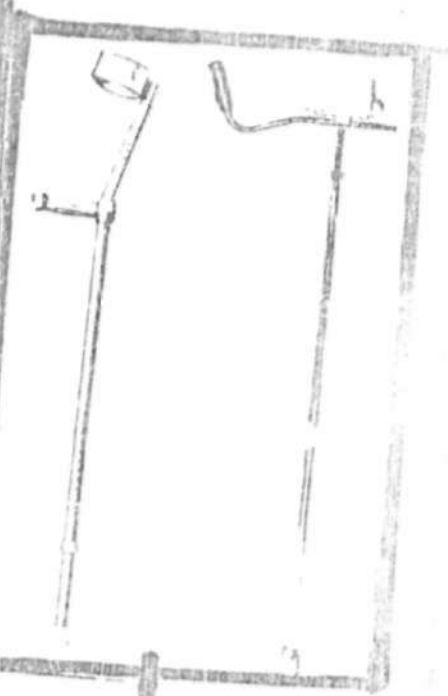
(1) Self-propelling folding wheel chairs

(2) Self-propelling non-folding wheel chairs

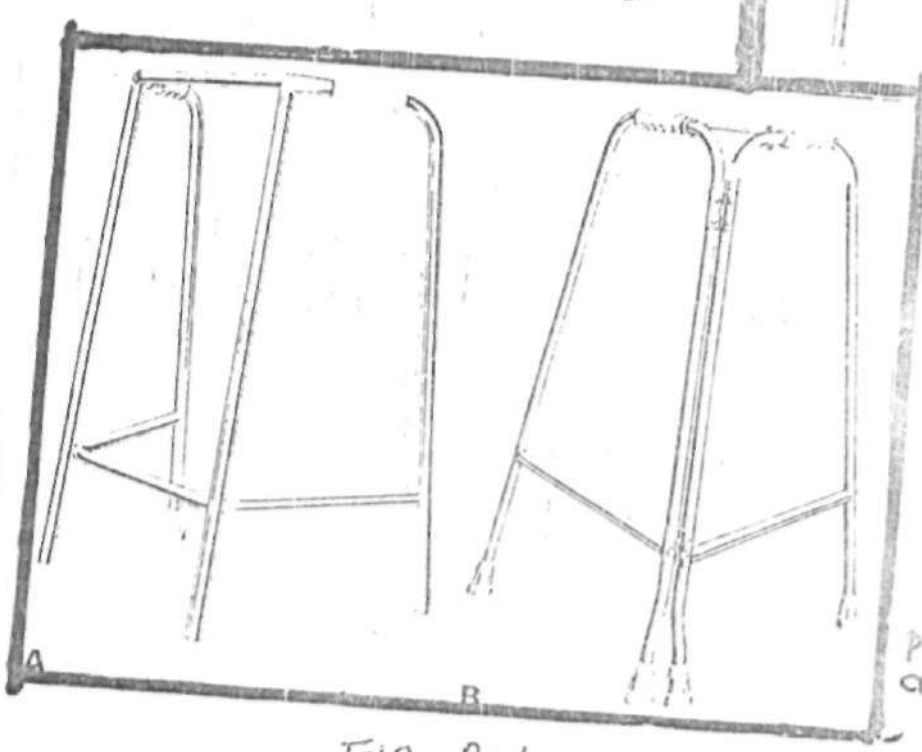
(3) Attenient - propelled wheelchairs



Sticks and Ferrules

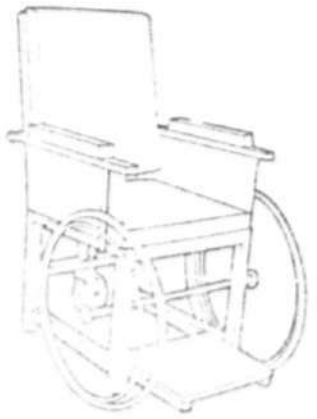


Elbow and Forearm bearing Crutches

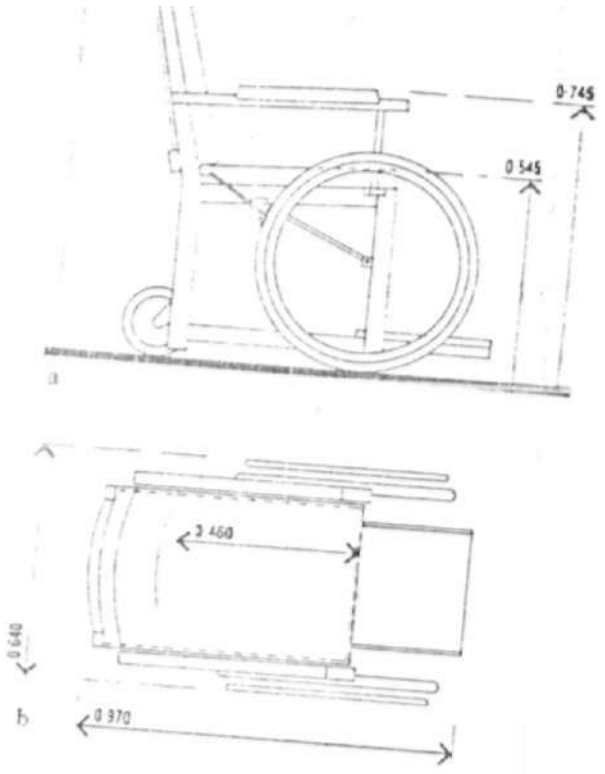


Pick-up aids or Frame

Fig 2.1



DHSS model 1 wheelchair



DHSS model 1 wheelchair (1:20)



DHSS model 13 wheelchair



DHSS model 9L wheelchair

Fig 2·4

(4) Powered indoor wheelchairs

(5) Powered outdoor wheel chair

(6) Hand propelled tricycle

(7) Foot propelled tricycle

(8) Electrically propelled tricycle

2.6.0. The wheelchair and the Disabled person

Where planning or designing for the disabled people is mentioned, the wheel chair becomes the important module of consideration. And because of this, a knowledge of the various modes of maneuver, path of action and so on are of paramount imprtance to the architect. But before he acquires this, the architect must know how the disabled person manages to get around or achieve his oojectives while sitting in that 'Cumbersome' wheels.

2.6.1. Psychological Effect of the wheelchair

A recent TV programme tries to dramatize the experience of disability by putting its reporters in a wheel chair and asked to make their way round the town. The resulting frustrations were quite enough to tell what it means to be in that situation.

Yet this sub-set of the human race is neglected day after day in providing them with the best they require. This might have found root in the notion that able-bodied people are by definition normal and disabled people abnormal.

In the area of building, the architects and planners must not forget to ignore this fact. For the architect to know or remember this it is said that "put the architect in the wheelchair, then he will understand." It must also be borne in mind that when it comes to using building, the person in wheel chair is by comparison to the ambulant disabled;

> ".... three times handicapped. First, he has disability, which invariably, because it has put him into a wheel chair, its severely handicapping. Second, he is obliged to operate at lower level than normal, standing people (and always at the dame level) which is constraining both physically and psychologically. Third, he rolls around in a cumbersome, akward, space - consuming, distitive and in eligent vehicle."3

2.6.2. How the Physically Disabled move with Wheel chair

The non-self propelling is used by someone pushing it in the direction of motion.

The self - propelling wheel chairs are maneuvered independently by the disabled by either using nands on the rins, tyres or by using feet to push. He can also use two hand rins on one side or one hand on the rin and the foot on the floor. The motor-powered is used by using knobs on handrins.

Standing up from a wheel chair

Depending on the nature of his disability, the disabled person can stand up from a wheel chair by:-

(1) himself and without help
(2) with help of
    a) some one else
    b) an appliance
    c) both appliance and someone else.

Transferring in - and out of a wheel chair

The way the limb disabled people transfer in- and out of the wheel chair is mostly determined by their ability to use their legs, to stand.

Some of them have to be helped because of the extent of their disabilities, while others can do that independently either by:-

(1) standing up without help or

(2) standing up with the help of sticks, crutches or frames.

2.6.3. Prescribing the Wheel chair to the crippled

(1) Electric wheel chairs are prescribed to those with severe locomotory disability that they are unable to propel themselves.

(2) Attendant propelled wheelchairs are issued to those crippled that virtually need help in any course of action they do.

(3) Rear - propelled wheel chairs can be used by virtually all classes of disabled owing to its numerous advantages some of which are easy propelling, easy transfer to - or from the chair, easily discendable from berks or single steps etc.

(4) Front propelling wheelchairs: For a person with weak upper limbs, this type

of chair is easier to propel. Similar types can also be prescribed for double lower limb amputee owing to lesser risk of over balancing.

The advantages of these types of chairs is the marginal reduction of the overall length; giving less room for maneuver .

(5) One - arm drive wheel chairs. This type of chairs may be used by the hemipelgics who have strong function on one arm only.

Because of the economy in the use of space and high efficiency, the above mentioned chairs could be used in the proposed centre unless where a person's disability calls for special one. Tricycles, however, are not recommended for use because of their high operational inefficiency and consumption of space.

2.7.0. Disability Associated Problems

By their nature and inevitable position in the society, the disabled people are but one, if not entirely, the people who face varied forms of problems. these problems are universal in nature, but the magnitude and extent differ

according to culture and technological advancement. Some of the problems they face are:-

Physical Problems:

These are problems posed by an individual's in ability to use what an able-bodied can do due to limitations imposed on him by that disability. Such limitations could be vertical circulation, insensitivity to the environment either by experiencing darkness or silence.

To rescue the disabled people from being engulfed by this problem, efforts must be made to introduce physical corrections to the environment for example by trying to enhance the world of those who experience darkness and silence.

Psychological Problems

This is largely attributed to the behaviour of the able-bodied persons towards the disabled by regarding them as "representatives of evil things - tragedy, loss, darkness and the unknown". Such contentions reduce the moral and spirit of the disable person. Louis Battye confirms this herself when he says:-

> "Somewhere deep inside us is the almost unbearable knowledge that the way able-bodied world regards us is as much as we see to expect. We are not full members of the world and the vast majority of us cannot hope to be. If we think otherwise, we are sheding ourselves like the children and the insane, we inhabit a special sub-world a world with its wown unique sets of referents. Although it has communication with that greater world within which it is encopsuled, its not the same world nor even co-existance with it, it is within lesser, weaker and poorer."[4]

As can be seen a solution to this problem can only be achieve if the society adjusts to accomodate this section of the populace as one and part of it.

Environmental Problems

The environment interposes on the disabled person serious limitations in the use of such things like door knobs, going upstairs, using toilets or moving about freely. Apart from the interposing natural limitations, architects and planners (who are responsible for designing the buildings the disabled use, work etc) have course to answer. In most cases, they are concern with

Pleasing the interest of the able-bodied majority with no special attention to the disabled minority. This attitude is not surprising, because according to Carl Rogers:-

> "It is difficult to accurately sense the perceptual world of another person unless you value that person and his world - unless you are in some sense are ....."[5].

Unless the architects and planners become considerate in their objectives, no viable solution to this effect can be achieved. They have to realise that the environment they design can exorberate or deter the development of mental, physical and psychological health of an individual and that to what extent one is disabled is determined by the environment. According to Winstom Churchill "we form our environment and our environment forms us."

Social Problems

This is imposed on the disabled person by those design constraints that prevents him from visiting or effectively using public buildings like market places, hotels, theatres etc.

A legislation to this effect calling for designs with adequate accessibility to the disabled people can help in this respect.

Economic Problems

It is evident that if one should go round most of the town and cities in Nigeria and visit vantage points like the markets, shopping centres etc, he will first be welcomed by a fleet of beggers and destitutes, with one form of disability or the other soliciting for arms to "keep body and soul together."

Little do we realize the full economic potentials of these people, that if given the necessary training consistent with their kind of disability they can move from state of dependency to one of self-esteemation.

For this reason, this thesis work proposes a vocational counselling and training to meet this challenges.

Medical Problems

To most Nigerian disabled people, health problem is the most serious headache. Lots of their disabilities degenerated to such stage because of lack of proper medical attention.

In this thesis work all attention is given to the aspect of treatment.

2.8.0. The prevention of physical Disabilities

The most effective method to follow in preventing occurrances of physical disabilities is to attack the problems from grassroot - by attacking the causes themselves.

(1) Accident

By educating drivers on dangers of reckless driving or driving under the action of drugs and alcohol, occurrances of crippling conditions can be drastically reduced.

(2) Drug - abuse and alcoholism

This factor is known to contribute immensely to most problems associated with congenital malformations. The populace, especially the female should be educated on such dangers to prevent giving birth to babies with no arms or legs, e.g. the spastics.

(3) Control of Communicable Disease

Spread of communicable diseases like the polio, scarlot fever, tuberculosis of bones and

and joints should be arrested by an imunization or vaccination.

4. People who are by their occupation expose to dangers of being crippled like those in the Fire Services, operating heavy machines, climbing high attitudes or towers etc, should be insured by their employers against any occupational disability.

5. The governments (both Federal and States) should encourage the setting-up of factories for the manufacturing of rehabilitation equipments like the wheel chairs, crutches etc.

6. The various governments should initiate, encourage and pioneer the setting-up of rehabilitation centres for all categories of the disabled people.

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CHAPTER THREE

REHABILITATION IN NIGERIA:-

TRENDS, POLICY AND PROGRAMME

Before going into the various paths that the aspect of rehabilitation passes in Nigeria, it is worthwhile to give an operational definition to the term rehabilitation.

The chambers dictionary defines rehabilitation as "a means to restore by formal act or declaration (a person degraded or attained) to former privilages or ranks or possession."

Various scholars, philosophers or social scientists also contributed their own quotations.

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.

Bewaran (1984) defines rehabilitation as the restoration of the disabled to the fullest physical, mental, social, psychological, vocational and economic usefulness.

Gearheart (1980) sees rehabilitation as the general term which refers to the assistance provided to the handicapped person.

From the foregoing definitions, it would be noticed that each is giving emphasis to the restoration of lost potentials in the handicapped person. In the context of modern madical advancements, rehabilitation could be used to mean the continuous medical, paramedical and vocational process through which a person who has been disabled by congenital malfunctions, injuries or otherwise can, to the extent possible, achieve his full acceptance as a working member of the society and become an integral part of it.

3.1.0. History of Rehabilitation:- a universal case

The problems or social issues about the disabled is a subject of universal concern. Though it had been developed in all parts of the world, the development had not been simultaneous. Depending on its social, political and economic backgrounds, each nation embarked on the task of rehabilitating its less unfortunate members in a rather step-wise manner.

In Britain, not until 1531 that any meaningful attention was given to the issue of rehabilitation; all along it virtually had been an affair of the charity organizations. In 1531, the government

became involved and for the first time begging was licensed in England.

In 1772, a law was passed establishing work-houses in order to provide jobs for the lazy and the unemployed. The system was improved in 1834, and since then great care and attention had been exercised in caring for the disabled. The National Assembly Act of 1927 is now responsible for caring about the disabled in Britain.

In America, the trend almost followed suite. However, in America, the action was largely initiated as a means to resettling world was veterans. And in 1916, the first legislation was out and that was the birth of an action that was later to become a large National programme of today.

A broader concept was given to this issue and the Smith - Foss vocational Rehabilitation Act of 1920 was the first federal law to include all classes of the physically disabled. In 1935 the social security Act (SSA) was established and by 1956 the disability insurance policy was approved too. Amendments were made to the 1935 SSA to allow for the use of Trust Fund for the rehabilitation of the disabled beneficiaries.

This goes the provision of rehabilitation in America which is mostly guided by the basic philosophy that equality of opportunity to participate in the benefits and responsibilities of the nation is the natural right of every citizen.

3.2.0. History of Rehabilitation in Nigeria

In Nigeria, rehabilitation programmes were initiated mostly as a result of western influences and further enhanced or continued by social organizations and individual philanthropists who are concerened with the welfare of the disabled. These agencies and individuals worked for years with little or no government support. Where government support come in, it was in form of special grants. It was not until the early 1970s that the Federal Government assumed responsibilities for the welfare of the disabled.

Some of the voluntary organizations are:-

(1) Home and School for the Handicapped children

(2) Committee for the care of the Deaf and Dumb

(3) Federal Society for the Blind

(4) Nigerian Leprosy Relief Association

Among the rehabilitation schemes they initiated are:-

(1) Rehabilitation and leprosy settlement, Mangu

(2) Alushi Medical Rehabilitation Centre Akwanga (Plateau State) 1944

(3) Pacelli School for the Blind, Surulere, Lagos.

(4) Betty Tory Home, Zaria (Kaduna State) 1968.

(5) Shabu Rehabilitation, Lafia (Plateau State) 1952.

(6) St. John's Blind Centre, Obudu (Cross Rivers).

3.3.0 Rehabilitation Programme in Nigeria:-
Role of Federal and States Governments

Over the years, there had been no deliverate national plan to rehabilitate the disabled. Indeed most of the rehabilitation work for the disabled people, as earlier pointed out, are being handled by a few voluntary and charitable organizations.

With increased complexity of the social problems posed by this class of the human

populace, the Federal Government was forced to intervene in the issue, and took some adhoc steps towards rehabilitating them. In 1965, the Federal Ministry of Labour set - up a committee under the chairmanship of Mr. Abraham Ordia to study the problem of street begging and its attendent repercursion on public health The committee found out that in Lagos alone, the number of beggers had risen from 459 in 1958 to 1,182 in 1965 (an increase of 256%)[2]

In 1967, the Federal Government implemented part of the committee's recommendations by repatraiting about 700 beggers and destitutes from Lagos to their various states. However, this measure did not work out efficiently and a much larger committee was set up under the chairmanship of Mr. Ordia again.

This led the government to set aside the sum of £100,000, for disbursement during the second National Development plan, 1970-74 for the purpose of providing for rehabilitation centres in the federation.

The Federal Government's programme a attracted United Nations and some of its a agencies as, WHO, UNDP, UNICEF AND the world Rehabilitation Fond.

The Third and Fourth National Development Plans alike, have a promising package for the disabled. The Third National Development Plan earmarked the sum of N6m for the setting up six Rehabilitation Centres in 1979. In the Fourth National Development Plan (1980 - 84) another amount was set aside for the health services including funds for rehabilitation of the disabled.

A giant leap was made in 1981 with the declaration of the year as the international year of the Disabled by the United Nations. This stimulated a new approach to the problems of the disabled in Nigeria in particular, and the world in general. In Nigeria, it was celebrated by establishing the National Council for the Rehabilitation of the disabled and the setting up of many more rehabilitation centres. This could be said to be the initiative factor responsible for proliferation of many rehabilitation centres in the nation to date.

On their own part, the various state governments, whether individually or in collaboration with the Federal government, had attempted various forms of rehabilitation schemes. Though fairly concieved, however, most of them failed due to lack of manpower, poor financing or administrative lapses. Among the pioneer states and

centres established were:-

Bendel State

Construction of Vocational Training Centre for the Handicapped persons and sheltered Work shops for use by the Handicapped persons.

Benue/Plateau States

Construction of 12 alms houses for beggers and destitutes at Akwanga, Makurdi, Gboko, Otukpo, Shemdam, Langtang, Keffi, Laffia, Panshim, Wukari, Nassarawa and Jos.

Borno/Bauchi/Gongola States

Construction of destitutes and refugee Transit Centres with residential facilities, improvement and construction of new workshops for the handicapped.

Kaduna State

Rehabilitation centre for Beggers and Destitutes in Kafanchan, Katsina and Kaduna.

Kano State

Construction of Rehabilitation Centres and

workshops at Kano, Hadejia, Gumel, Kazaure, Dambatta, Birnin - Kudu, Rano and Gwarzo.

Lagos State

Construction of Rehabilitation Centres for Beggers, Lunatics and Destitutes at Mijadun along Ikorodu Road to accomodate 500 - 700 destitutes.

Niger/Sokoto States

Construction of Rehabilitation Centre for the Disabled at Sokoto, Kontagora and Gusau.

Oyo/Ogun/Ondo States

Construction of a centre at Ilesha for the rehabilitation of the disabled.

From the efforts made so far by the federal and states governments, the point become vividly clear that these authorities are well aware of the responsibilities they are supposed to shoulder regarding the plights of the disabled people, and yet only a fraction of the proposals made was able to scale through. The civilian era even worsened the situation by diverting attentions away from important national issues towards political ones.

It is sad to see that despite a total number of twenty two rehabilitation centres of different categories in the state, yet the issue of a serious rehabilitation policy in Kano state is ever dying in the minds of the policy makers. This is evident in the fact that there is still no Rehabilitation Board in the state and what is supposed to be its work is managed by the states' ministry of Social welfare, Youth and sports.

3.4.0. Social Welfare Policy and Programmes (Prospects and Failures)

The question that "does the formally instituted programmes usually legislated by the government action with implementing procedures and administrative rules establishing by the responsible agency, accomplish the generally stated objectives in dealing with the underlying problems". The answer is no.

This is because, the in-consistency within these areas of concern may result in lack of "success" for the implementation of a social programme independent of the level of funding or operating efficiency in programme administration. No attempt is made to assess programme efficiency

as such, the orientation is always to the policy's formulation and implementation, and the programme's outcome.

In Nigeria, some factors attributes to such failures include:- lack of appropriate data on the nature or dimensions of the social problem or on what actions might affect it and how; political reasons etc.

In his testimony about the social problems of disabled in Nigeria, Okeiji, F. (1972) say, "It must frankly be admitted that we do not know enough about the genesis, persistence and social organization of street begging in Nigeria."[3]

3.5.0. Philosophy and the Need for Rehabilitation in Nigeria

As a summary to the forementioned analysis on the trends that rehabilitation schemes follow i.e. from the social problems of the disabled to governments programmes, the point stands clear that the issue of has and is still taken for granted. that the

The various rehabilitation programmes proposed by the governments had been virtually a failure due to reasons of inadequate fund,

manpower or administrative lapses. Where they succeed, it is found out that the rehabilitation centre lacks basic services to cope with the general problems of the disabled. Thus a graduate from this centre will face problems of unemployment social equality etc when he finally finds himself in the community once again.

With increase in causes of disabling conditions; car accidents, diseases, high-automation technology malnutrition, poverty etc, the number of destitutes and beggers is always increasing in alarming dimension wherever you go in Nigeria.

In Nigeria, according to Lucas, A (1972) "ill-health in particular, and physical handicap in general, is the most important factor which turns a person into begger. "He further suggests that "physical rehabilitation should include all forms of treatment to get the established begger back on his feet as much as possible."[4]

This new concept about rehabilitating destitutes is by far gaining ground. As opposed to the traditional system whereby a disabled is taking to the rehabilitation centre only to be given vocational training, this new philosophy requires the disabled to be treated against that disability in addition to giving him vocational training.

This new approach calls for setting up new comprehensive rehabilitation centres in the nation.

3.6.0. Factors for Successful Rehabilitation Centres

(1) The rehabilitation Board should strive towards improving the public awareness of the importance of rehabilitation in the society.

(2) The programme should be a team work involving all professionals and specialists required in the rehabilitation process.

(3) Interested people willing to work in the centre should be encouraged by giving them additional advantages against their counterparts in other areas.

(4) Adequate plan should be made to meet the various needs of the rehabilitees.

(5) There should be legislation to ban begging squatting and other such social vices.

(6) The rehabilitation should be made compulsory and free to all disabled.

(7) Adequate and consistent means of funding to be evolved.

(8) Rehabilitation centres to be integrated into the social fabric of the society.

If adequately conceived and implemented, the above proposals will hopefully lead to an effective rehabilitation in Nigeria.

3.7.0. Financing the Rehabilitation Centres

One common problem associated with the failure of previous rehabilitation programme was the lack of sufficient funding to keep the programme going, at such they have to be abandon. This made such programmes a short-term issues. However, with an effectively worked out machinery of funding, it is hoped that the programme will be an everlasting exercise.

Some proposals to this effect are:-

(1) The states Rehabilitation Boards should be charged with the responsibility of collecting alms on behalf of the rehabilitees. Such alms collected will be used to assist the government in maintaining the centres.

(2) Special charity programmes should be arranged to create avenues for raising funds to run the centres.

(3) The public should be enlighten on the importance of given funds to run the centres rather than giving those on streets.

(4) The centres should operate sheltered workshops where sales from the products made by the rehabilitees will be used to run the centres.

3.8.0. Types of Rehabilitation Centres

After going through the trends of rehabilitation schemes in Nigeria, it is then worthwhile to look at the various types and standards of rehabilitation centres. This will afford a choice of the one that would best suit Nigerian scheme; i.e. to say, the one most compartable to the problems of the physically disabled and present situation in the country.

(1) Hospital Rehanilitation Centre

This is almost like nursing home where there is a transition from hospital to the home and/or

place of work. Vocational facilities are lacking in such centres.

(2) Institutional Rehabilitation Centre

Such centres provide a slight transition from hospital to the home and/or place of work. But most of them harbour their rehabilitees in the dormitories which pose some temporamental problem.

(3) Hospital/Institutional Rehabilitation Centre

In these centres, attempts are made to combine types (1) and (2) in which case they harbour rehabilitees and patients in wards and/or dormitories containing about thirty people in a single enclosure. This aspect is considered unconducive to contemporary and proper rehabilitation.

(4) Home Rehabilitation Centre

This is the new trend whereby rehabilitees and rehabilitants (occasionally) live together in a "Family" group of 12 or more with two people sharing a bedroom. This type of rehabilitation is generally expensive to run and has to be highly selective especially in grouping of "Families". No vocational facilities are provided in the centre,

hence it is good only to on - the - job rehabilitees.

(5) Sheltered workshops

Such centres have vocational facilities for the job-tryout rehabilitants on job placement. Generally, there are no residential and therapeutic units within the centre.

(6) Comprehensive Rehanilitation Centre

Such centres undertake all forms of rehabilitation and each centre contains most of the facilities in the preceeding centres.

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CHAPTER FOUR

SERVICES TO THE PHYSICALLY DISABLED

In a rehabilitation centre, the services offered to the disabled can best be explained in terms of the professionals or specialists that participate or perform these services. These specialists are persons that have interes in the centre and their approach to the treatment they offer. For proper co-ordination of management, the "team approach" concept is generally adopted in the management of rehabilitation centres.

This "team approach" is thus called because it requires the ability and skills of a complete rehabilitation team working in an integrated and coordinated effort to assist the patient in reaching the maximum of his physical, emotional, social and vocational potentials.

To fully understand the "team approach" concept, an anology is drawn between the specialists involved, the physically disabled and the family on one hand, and the sports team on the other. In sports, the team consists of groups of players each performing a task to achieve a certain objective. The task is either preventing an event to occur (in case of a team opposing the other to make a score) or for an event to occur (in

case of a team wishing to make a score against the other). The end result of all these is to win the contest where a team relies on the skill of a single feature or perfcrmance of a single player, then it will lose, or more precisely, its goal may not be achieved. On the contrary, when the team members strive to avoid dependency on a particular feature or skill of a particular individual, their collective efforts will be directed towards a unified goal.

To a rehabilitation team, similar criteria can be applied to the services it offers to the disabled person and his family. The team now consisting of specialists in all disciplines performs a task of preventing some events to occur (i.e. structural and postoral malalignment, intellectual detorioration) and striving for others to occur (e.g. re-establishing muscles and joints motion, giving skills for vocational training etc). Similarly, the end results of all these efforts, like the sports team, is to achieve a goal, in this case, the ultimate independence of the disabled person. The only difference between the two teams is that whereas the joy of the sports team is their own, in the treatment team the joy is for the disabled person.

In a rehabilitation centres, these individual goals should combine to reflect a total convergence of success for the physically disabled rather than a collection of distinct, but equal goals. Although a member can display his ideals to the highest stage, however, this effort must acknowledge the existance of other members as equally contributing forces.

The team draws its services upon the specialized skills of the physician, physical therapist, occupational therapist, social worker, speech therapist, hearing therapist, nurse, vocational counsellor, psychologist, prosthetic specialist and lots of other professionals.

4.1.0. The Role of the Physician

By the very nature of his position, the physician is the head of the rehabilitation team. It's role in relation to the other members could be described as that of a co-ordinator. Of all the other team members, the physician is one whom the centre's personnel, patients, and the public are most often in contact with.

The physician is an orthopeadist or orthopeadic surgeon who specializes in the functioning of the skeletal system and can give advise on surgical procedures, use of braces other appliances for the prevention of deformities or improvement of motor activities.

His main functions are:-

(1) together with other team members, decides on admission and discharge.
(2) physical evaluation of patients
(3) total health situation of the patients
(4) Examination and taking records of medical and health situation to determine the kind of treatment and areas needing treatment.
(5) to determine extent of disability and its effect.
(6) referal role for other treatment.

Hence the chief roles of the physician are in the physical aspects of growth and development i.e. orthopeadic considerations, medication and recommendation for the commencement or stoppage or treatment. In some instance, he will require the services of other specialists like neurologist, cardiologist, endocrinologist etc.

4.2.0. The physical Therapist

A physical therapist is a specialist that performs or give treatment to a disabled patient using a specialized form of physical agents or means. To be more precise, the physical therapist practices as a part of a large and varied team of personnel which includes the physician, severally as the team leader, and other professional and assistive health specialists, as well as members of the lay community.

Although medical prescriptions to a patient may include a variety of instructions and treatments, however, the selection of method and type of treatment procedure may be the decision of the physical therapist. His other role is in the choice of therapartic techniques used to develop strength and motion of muscles or bones.

The science by which the physical therapist accomplish these task is called physiotherapy. The objective of physio-therapy are to correct or alleviate bone and joints or neuromascular disabilities. This entails a concern with all types of physical disabilities such as neurological disease, arthristis, amputation, paralysis, structural or postoral malalignment, crippling accidents etc. Measures are used to retain or establish circulation, muscle tone,

joint motion leading to mobility, ambulation and activities of daily living.

To achieve these aims, the physical therapist makes use of heat, cold, water, light as well as training effects of active, passive resistive and re-education exercises.

4.3.0. Occupational Therapists

In rehabilitation procedures, the physically disabled is stressed with concern for his physical, social, vocational and spiritual needs. These basic needs of the disabled are expressed through activities of daily living, work and recreation Occupational therapy uses these activities as medium of treatment.

Defined within this context, occupational therapy is any activity, mental or physical, medically prescribed and professionally guided to aid a person in recovering from disease or injury.

The professional specializing in this branch of physical medicine is the occupational therapist. As a member of the rehabilitation team, he works hand in hand with the physician,

physical therapist and the social workers. His major roles are:-

(1) assists in the mental and physical restoration of the physically disabled

(2) assessement of the disabled functional abilities in terms of physical capabilities

(3) preventive treatment to reduce or limit the effect of disability and its possible progression.

(4) training of disabled in the activities of daily living

(5) prevocational exploration to determine the disabled's physical and mental capabilities, social adjustments interests, work habits, skill and potentiality.

These treatment purposes are achieved through patients active participation in purposeful activities and techniques having therapartic values. The selection of the activities depends on the nature and type of the disability.

4.4.0. The role of the Social Worker

The position of the social worker in the rehabilitation team can be termed as that of an "enabling person".

The specific function of the social worker in a rehabilitation centre are not so easily defined as they may be in a traditional hospital setting. The traditional hospital team consists of physician, nurses and social workers, while in the rehabilitation centre, the psychological team includes psychiatrists, psychologists and vocational counsellors. The social worker's contribution is primarily to enable the patient to use other services within the hospital or rehabilitation centres or to use the appropriate resources outside.

The social worker represents the community within the hospital or rehabilitation centre and the larger community outside. His job from the intake interview on, is to help the disabled relate to the immediate society of the centre and to his own community to which he will return.

The social workers services a can be summarized as follow;-

(1) Social study and Evaluation, including the collection of relevant information on the disabled person, and the appraisal of such information withrespect to the disabled rehabilitation programme.

(2) social case work, where the social worker works with the disabled person to improve his (the disabled's) attrit attitude towards self-support and motivation towards treatment and work.

(3) Social group work including the correction of abnormal living behaviour by using planned group activities, recreational in nature but therapartic in nature.

4.5.0. The Role of the Psychologist

Vocational and psychological services offer counselling to the physically disabled to them to adjust to the services, as does the social service until they are able to plan vocationally. The psychologist has specific tools to use in and contribution to make from his psychological testings. He can ascertain the intelectual functioning and evaluate the intellectual endowment of the disabled. His projective technics are diagnostic aids aimed at uncovering unconscious conflicts.

The main services of the psychologist in a rehabilitation team offered to the disabled people are:-

(1) psychological evaluation, accomplished by means of various psychological testing procedures and interviews which evaluate the disabled's intelligence.

(2) Interpretation of clinical findings to the members of staff.

(3) therapautic counselling on either individual or group basis.

4.6.0. Recreational Therapy

Recreational therapy is the therapautic treatment given to the physically disabled persons to enable him participate, to the extent possible, in the educational, play and family activities of daily life. The goal of services provided by the recreational therapist should not be seen as anything different from those offered by other specialists. This is because, to any person, whether disabled or able-bodied, recreation brings leisure as well as reief from stagnation and physical deterioration that results from confinement to the office, classrooms, bed, wheelchairs or other work or life setting.

A recreational therapy provides specific therapautic benefits to those with physical disabilities. These benefits may result in the

strengthening of muscles, joints and so on and in an effort to bridge the gap between the sheltered environment of the life of the person with physical disability and that in which recreational opportunities are offered.

The importance of recreational therapy should not be underestimated and opportunities to learn skills necessary for participation at whatever level choosen by the individual should be made available to the person with disability.

4.7.0 Rehabilitation Counselling

Rehabilitation Counselling is generally considered as the core of rehabilitation process. It provides an opportunity for the person with disability to obtain an understanding of his vocational abilities and potentials and to learn the scope of their possible application.

The role of the vocational rehabilitation councellor not only includes an assessment of the vocational skills of the disabled person and the development of work training, it also involves an active community based component. He needs to be aware of the community's job and their requirements,

assessment for job competition, employment opportunities and the likes.

4.3.6. Orthopeadic Appliances

Orthopeadic appliances also play important role in rehabilitation since disabled person's use of these appliances (Prostletic and Orthotic) indicates his ability to come to term with his loss. For another reason, these applicances are generally the identification marks by which a disabled person is easily picked up within the whole spectrum of human being.

Basically, orthopeadic appliances are artificial aids or subtitutes to disabled member of the body. They may be for manipulative or locomotive purposes. Some of the ones in use now are shown in plates I & 2



Plate I



plate II

CHAPTER FIVE

AN X-RAY OF FACILITIES IN A REHABILITATION CENTRE

As a step towards meeting the standards of a comprehensive rehabilitation centre, i.e. of providing a complete rehabilitation scheme to the physically disabled, it is worth the while to look critally at the various facilities that form the core of a rehabilitation centre. This will afford a thorough understanding of the various modes of operation, composition as well as functions that such facilities provide; hence a good understanding of the whole working system of the centre.

Broadly speaking, a comprehensive rehabilitation centre provides the functions of TREATMENT and REHABILITATION and has the following sections:-

Administration section

Medical section

Accomodation section.

5.1.0. Administration Section

The administrative section is where the entire adminstration of the whole centre is done. It has basically two main sub-sections; the administrative and maintenance departments.

The administrative department forms the main focus to visitors coming to the centre as their first place of contact. The department has offices for senior staff as well as conference room for staff meetings and clerical offices for general works.

The maintenance department is charged with the general maintenance of the equipments used in the centre.

3.3.0. Medical section

The medical section of a rehabilitation centre provides the services that is popularly known as the third aspect of medicine, or more commonly referred to as physical medicine.

The medical section provides the basis for the disabled's total programme in the centre. As the main out-patient section, it serves as the initial contact for any disabled coming to the centre. The section has a variety of departments each unique in its services but common to the others in its collective motives to the disabled person. The departments comprising the sections are:-

Medical evaluation department

physical therapy department

Occupational therapy department

Social adjustment department

Orthetic and prosthetic department

5.2.1. Medical Evaluation

Medical diagonis is the basis for development of the patient's successful rehabilitation programme. On admission to the centre, a patient is examined several of the centre's areas of activities. Complete evaluation of the patient requires the services of consulting medical and paramedical specialists.

The department has the following areas:-

Waiting areas

Examination and consultation suits

radiology

pharmacy

records

offices

5.2.2. Physical/Hydrotherapy department

The functions of this department are to correct or alleviate bone and joint or neuromascular disabilities. This entails a

concern with all types of disabilities such as neurological diseases, artheistis, amputation, paralysis spasticity, structural malalignment, cripoling accidents etc with a view to regaining or establishing circulation, muscle tone co-ordination, joint motion leading to ambulation and mobility and activities of daily living.

The department has the following areas:-

Examination/consultation suits
treatment cubicles
gynmasium and/or exercise
hydrotherapy pool
shower/changing room
waiting area
therapists' offices
store.

5.2.3. Occupational therapy department

The occupational therapy department has the main function of assisting the crippled person in his physical restoration, enabling him to adjust to his disability, increase his work capabilities and become a useful member of his community. In addition crippled person is trained in activities of daily living.

The department has the following areas:-

therapy rooms

waiting area

activity of daily living

therapists' offices

shower/changing rooms

store

The activities of daily living are the following facilities:-

Bathroom/wc

Bedroom/livingroom

kitchen

dining area.

5.2.4. Social adjustment department

This department helps the disabled patients to overcome their social problems through organized work of psychologists, psychiatricts and medical social workers. Social and psychological evaluation and counselling are conducted on the disabled patient to assess his intelligence or to improve his attitudes towards self-support and motivation towards treatment and work.

The department consists of:-

waiting area
psychologists' offices
social workers' offices
social group rooms
psychological resting/evaluation rooms.

5.2.5. Orthetic and Prosthetic department

The department provides the disabled patient with artificial substitutes to his weakened or missing part of the body. In addition, the department undertakes minor adjustments and repairs to appliances, wheelchairs, braces, limbs and crutches.

Main areas in this department includes:-

waiting area
shop area
fitting area
castering
store
offices.

5.2.6. Therapheatic Appliances and Equipments

Special and unique appliances and equipments are used in all the therapy departments, however

their prescriptions depends on the nature of patient's disability as well as the scope of the centre. Some equipments and appliances used in the physical/hydro-therapy treatments are:- massege splints, electric machines, posture mirrors, stationary bicycles, gymnasium matress, parallel bars, horizontal bars, shoulder wheels, ramps and stairs weight lifts, sand bags, springs, crutches, walking frames, arm and leg whirlpools, hubb and tank, swimming pool etc.

Common occupational therapy equipments and appliances in use are:- rehabilitation machine bicycle, weaving/printing machines. Others include sand blocks, weighted blocks, foot power lathe, bicycle fret saw machine peg boards, weighted checkers, different forms of splints, etc.

5.3.0 Rehabilitation section

In the rehabilitation section training and programming is made in order to train the rehabilitees in what is most beneficial to them, in terms of securing employment or self employment. The section has three main departments which are:-

Vocational training

Sheltered workshop

Special education.

5.3.1. Vocational training

This department has the responsibilities of acquinting the disabled person with situations in industry and business and of preparing him for job competition. The vocational programme is determined by the patient's (disabled's) needs and by the needs and opportunities of business and industries in the community served by the centre.

The vocational programme or training is prescribed after a serious of evaluations and counselling of the disabled's abilities, interest etc. During this period of training, the disabled patient may continue to receive treatment from the medical section, social adjustment or any other part of the rehabilitation centre.

This department has the following areas:-

training workshops

evaluation offices

counselling offices

conference room

Some basic arts and crafts training provided by this department are either skilled, semi-skilled or unskilled works. The breakdown is as follows:-

(A) Commercial

1. Typist
2. Sales clerks
3. Receptionists
4. Cashier/financial clerks
5. Secretaries.

(B) Skilled and semi skilled

1. Sewing and Toiloring

Tailors

Hand sewers

sewing machine operators

chair cover makers

cutters

trimmers.

2. 2. Arts and Crafts

. Ceramic

leather

weaving

metal work

3. Repairs

Watch repairing

shoe repairing

camera repairing

tool shapening.

C. Semi-skilled and Unskilled crafts

1. Door mat making
2. car floor mat making
3. leather work
4. wood work
5. Basket work
6. Rope carpet making
7. Weaving/Dying
8. painting
9. Chair canning
10. soft toys making.

5.3.2. Sheltered workshops

The sheltered workshops provide additional opportunities for further evaluation, training and eventual employment of the disabled person. The department is never an isolated unit in terms of programme, but is part of the total vocational area which in turn is an intergral part of the centre.

Apart from being an employment setting, the sheltered workshops department serves as the marketing department of the centre, advertising the ability, capability and talent of the rehabilitees as well as exhibiting and selling products made by the rehabilitees.

This department has such areas as:-

workshops

stores

supervision offices

exhibition hall

sales room

workers/rehabilitees rest rooms.

Much specialized works undertaking by this department include:-

A. Metal works

Bed repairs

Blacksmithing

Bicycle repairs

welding.

B. Woodwork

Carving

furniture and uphostery

carpentry.

C. Arts and Crafts

Ceramics

leather works

paintings

cap making

car floor making

toiloring

basketing

ıving

D. Looming works

Canvas embriodery

soft toys making

Knitting

Chair canning

Door mat making.

E. Repairs works

Watch repairs

Shoe repairs

Electronics repairs.

F. Commercial Works

Typist works

Receptionist

Sales clerks

Cashier/Finance clerks.

5.3.3. Special Education

Special education opportunities are given to rehabilitees to further complete their rehabilitation programme. This will help the rehabilitees with difficulties in certain areas of academic or vocational achievements cope with the ever demanding industry.

The department has areas like:-

Classrooms

Staff room and

Offices.

5.4.0. Accommodation Section

The accommodation section of the centre provides sheltered housing to all categories of the rehabilitees; non - nursing and nursing disabled.

CHAPTER SIX

RESEARCH METHODOLOGY

6.1.0. Research Purpose

It is a known fact that careful study and analysis of the needs of a rehabilitation centre are not always considered before establishing them. Not only this, the underlying problems associated with the centres are not as well comprehended; i.e. to talk about the genesis, persistence and social problems associated with the eventual users of these centres - the destitutes in general. This spells out the reason why rehabilitation schemes in Nigeria are unable to perform effectively or eventually fail.

To make any rehabilitation scheme worth the while, it must set out to resolve these ambiguities. It is because of this fact that the thesis - Rehabilitation for the physically disabled, Kano - proceeds by a thorough investigation into the position of the disabled people in Kano state. This include finding sufficient data on the number of Rehabilitation centres existent in the state, areas they are located, scope of the rehabilitation scheme, method of intakes, responses of the disable persons to the scheme, government's policy package for the disabled etc. The task require a lot of data collection and analysis.

6.1.1. Methodology of Data Colection

There are two sources of Data Collected for this thesis: First-hand and second-hand sources. The first hand source was used to collect data directly from the source; from existing centres; from the rehabilitee interview with their staff; from appropriate government authorities like Ministries of social Welfare, Youth and Sports and Ministry of health; from thereupatic departments of hospitals; planning authorities and the site etc.

The second-hand method is the collection of data from published and unpublished books, magazines, Journals, Newspapers and thesis write ups of former students of architecture. This method is usually referred to as Book - method or Book - source method.

Interviews, observations and photographs were some of the methods employed to achieve this. Questionaires were not used as most of the rehabilitees in the centres are illeterates.

6.1.2. Method of Data Analysis

The data collected using the two methods highlighted above were compiled and then analysed. The raw data were either tabulated, put in form

of graphs or charts. This affords an easy assessment, comparison or projection to be made easily. On this basis, the population of the disabled to be housed in the centre, type of walking aids and equipments and facilities to be provided to the disabled, number of departments or units to be provided, types of manpower needed, types of vocational trades to train the rehabilitees in, number of rehabilitation personnel to have as well as the kind of environment - physical and social to provide were obtained.

This analysis affords me the chance to assess the situation of the disabled in Kano State in particular and the country in general. From the analysis, the point was vividly clear and visible; the establishment of rehabilitation centres is inevitable for a lasting solution to the problems of the disabled in our society. This is because no National Policy on the disabled was ever properly conceived. Although rehabilitation centres were, and are still being set-up, yet they are only vocational centres offering only vocational training; no effort is made towards normalizing their disabilities.

For this reason, I propose that this centre will involve itself with physical as well as social rehabilitation. The physical aspect is medical;

medical in the sense of therapautic treatment, hence the inclusion of a medical unit and accommodation unit for the disabled in the proposed centre.

6.1.3. Profile of Kano State's Disabled Persons

The state's share of the disabled persons in the country, at almost 1.5 million, was a staggering 15.58% of the state's population, which was significantly higher than the nation's average of 11.05%. This is however, not connected with the fact that being a historic commercial centre with international links, the state's cosmopoly attracted a large number of fortune-seeker, vagrants and the destitutes alike.

The number of blind persons in the state is 390,000 about 4.11% of the population. Alms houses at Bichi, Dawaki Kudu and Yakasai provide rehabilitation facilities to these people.

The state's disabled person with hearing in impairement are rehabilitated at Tudun Maliki centre and their number is estimated at 139,000 or about 1.46% of the population.

The state has about 151,000 cases of disableds with arm handicaps. These figures represent 1.59% and 1.63% of the population respectively.

Mental Infirmary at Ocron Dutse and the Kwalli Terry Home provide treatment and/or rehabilitation facilities to the state's 167,000 mentally disabled person (1.76% of the population).

The aged and the disabled inhabitants of the state are about 67,000. Road injuries and injuries at home and work claim about 43,000 persons or about 0.45% of the state's population.

Tables 6.1 - 6.5 below give the breakdown of the number of destitutes in the state: their spread and distribution by TYPE and FREQUENCY.

Table 6.1

KANO STATE:-

POPULATION BY LOCAL GOVERNMENTS

		(x1000) 1983	(x1000) 1984	(x1000) 1985	(x1000) 1986
1.	BICHI	525	546	568	591
2.	BIRNIN KUDU	511	531	553	575
3.	DANBATTA	467	485	505	525
4.	DAWAKIN KUDU	452	470	489	590
5.	DAWAKIN TOFA	566	589	613	637
6.	DUTSE	399	415	432	449
7.	GAYA	454	471	491	511
8.	GEZAWA	405	421	438	455
9.	GUMEL	436	454	472	491
10.	GWARZO	763	794	826	859
11.	HADEJIA	515	536	558	581
12.	JAHUN	306	319	332	345
13.	KAFFIN HAUSA	414	430	446	465
14.	KANO MUNICIPAL	719	759	793	832
15.	KAZAURE	351	366	381	396
16.	MINJIBIR	331	344	358	372
17.	NANO	739	763	793	825
18.	RINGIM	524	545	566	589
19.	TUDUN WADA	436	454	472	491
20.	WUDIL	658	695	723	752

Source:- National population Bureau, Kano Office.

Table 6.2

SPREAD AND DISTRIBUTION OF DESTITUTES IN KANO STATE BY NATURE OF DISABILITY

DESCRIPTION	STATE (x1000)	NATION (x1000)	STATE'S RATIO(%)	NATION'S RATIO(%)
PROJECTED POP. '82/83	9,500	92,000	-	-
DISABLED PERSON	1,480	10,870	15.58	11.05
DISABLED BLIND PERSONS	390	2,580	4.00	2.80
DISABLED DEAF PERSONS	139	1,040	1.46	1.13
DISABLED DUMB PERSONS	144	1,050	1.52	1.14
DISABLED LAME PERSONS	151	1,127	1.59	1.23
DISABLED MAIME PERSONS	155	1,747	1.63	1.24
DISABLED MENTAL PERSONS	216	1,267	1.76	1.38
DISABLED LEPROSY AND CO.	216	1,226	2.27	1.33
DISABLED AGED PERSONS	67	380	0.71	0.42
DISABLED ACCIDENT AND RELATED PERSONS	43	348	0.45	0.38

Table 6.3

SPREAD AND DISTRIBUTION OF DESTITUTES IN KANO STATE BY FREQUENCY

	STATE (x1000)	NATION (x1000)	STATE'S RATIO(%)	NATION'S RATIO(%)
DISABLED MALE PERSONS	1,112	7,282	11.71	7.92
DISABLED FEMALE PERSONS	369	2,888	3.88	3.14
DISABLED 0 - 19 YEARS	305	2,190	3.21	1.29
DISABLED 50 + YEARS	429	3,824	4.52	4.16

Source:- Kano State Ministry of Social Welfare Youth, Sports and Culture.

Table 6.4

NUMBER OF DESTITUTES IN REHABILITATION CENTRES IN KANO STATE

NO.	C E N T R E	1984	1986
1	MARIRI	250	227
2	DAWANAU	274	340
3	DORAYI	200	240
4	REMAND HOME	58	113
5	TORRY HOME	36	41
6	CHILDREN HOME	35	48
7	OLD PEOPLE'S HOME	33	34
8	HADEJIA	29	39
9	GUMEL	28	36
10	KAZAURE	42	50
11	DANBATTA	44	49
12	BICHI	76	86
13	DAWAKIN KUDU	91	92
14	RANO	40	25
15	RINGIM	33	24
16	GAYA	35	30
17	SUMAILA	-	23
18	JAHUN	-	27
19	MINJIBIR	56	64
20	KARAYE	43	38
21	BIRNIWA	-	17
22	WUDIL	40	44

Source:- Kano State Ministry of Social Welfare, Youth, Sports and Culture

Table 6.5

1984 NO. OF DESTITUTES IN THE CENTRES COMPARED TO 1986

NO	C E N T R E	NO. OF DESTITUTES IN CENTRES 1986	1984	DIFFERENCE	%
1	MARIRI	227	250	- 23	- 13.00
2	DAWANAU	340	274	66	19.00
3	DORAYI	240	200	40	16.60
4.	REMANO HOME	113	58	55	48.00
5	TORRY HOME	41	36	5	12.50
6	CHILDREN HOME	48	35	13	29.00
7	OLD PEOPLES HOME	34	33	1	1.90
8	HADEJIA	39	29	10	25.00
9	GUMEL	36	28	8	22.00
10	KAZAURE	50	42	8	16.00
11	DANBATTA	49	44	5	10.00
12	BICHI	86	76	10	13.00
13	DAWAKIN KUDU	92	91	1	1.07
14	RANO	25	40	- 15	- 60.00
15	RINGIM	24	33	- 9	- 36.00
16	GAYA	30	35	- 5	- 16.00
17	SUMAILA	23	-	23	100.00
18	JAHUN	27	-	27	100.00
19	MINJIBIR	64	56	8	12.50
20	KARAYE	38	43	- 5	- 13.00
21	BIRNIWA	17	-	17	100.00
22	WUDIL	44	40	4	9.00

Source: Kano State Ministry of Social Welfare, Youth, Sports and Culture.

6.2.0. Case studies

As earlier on stated in the introduction, it is design and detailing aspects of rehabilitation centres from both within and outside the country. The studies on these existing similar projects will afford the architect to have an insight into what has been done before. The aim is not to copy the previous projects but to understand the good and bad aspects associated with the planning, design or user satisfaction of the buildings, for him to come out with a better solution by avoiding the previous shortcomings.

In this thesis, four different case studies of existing similar projects are considered; two from within the country and the other two from outside the country. They are:-

(1) Mariri Rehabilitation Complex, Kano (Kano state)

(2) Rehabilitation for the Blind and crippled Kakori - Kaduna (Kaduna State)

(3) Centre for the physically handicapped Dublin -

(4) Landale School for the physically handicapped, Steverage - Hertsfordshire.

6.2.1. Mariri Rehabilitation Complex, Kano

LocationL

The centre is located at Mariri village some three kilometres or the eastern countryside of Kano metropolis along Maiduguri Road. It is built on a relatively flat land and has one main entrance to the complex.

History

The centre was established in 1980 by the Federal Government of Nigeria along with five others in the Federation. Initially, it began as a day institution however, circumstances warranted the need to convert it to boarding standard. Hence, in 1983, the accommodation unit was added.

Aim

The centre was primarily set up to train the rehabilitees - blind and crippled - on different vocational trades as a means of reducing street begging, however, with no attempt to normalizing the disabilities.

Scope

The centre is designed to cater for two categories of the physically disabled - the crippled with only lower limb deformities (the paraplegics)

and those with partial or total visual defects. It has a total capcity of 500 rehabilitees but at present (December 1986), only 262 rehabilitees mostly males and from the age of eighteen upward, are given training.

The centre has facilities like workshops, small clinic, residential area, administration unit as well as literacy classes.

Planning

The whole building fabric is single-storey consisting primarily of two wings - the working (workshops, adminstration etc) area and the accommodation areas enclosed within an outer ring road. Buildings are scattered all over the site (scattered planning). The main entrance gate is on the Northern side and opens to the married disabled's quarter.

The central area forms the main working area housing the workshops, administration block, store, the laundry, dining area and the clinic. The western side contains the Bachelors' residence. Like the married disabled, they are H-shaped and linked to each other by covered walkways. Generator and poultry houses are on the southern side of the ring road.

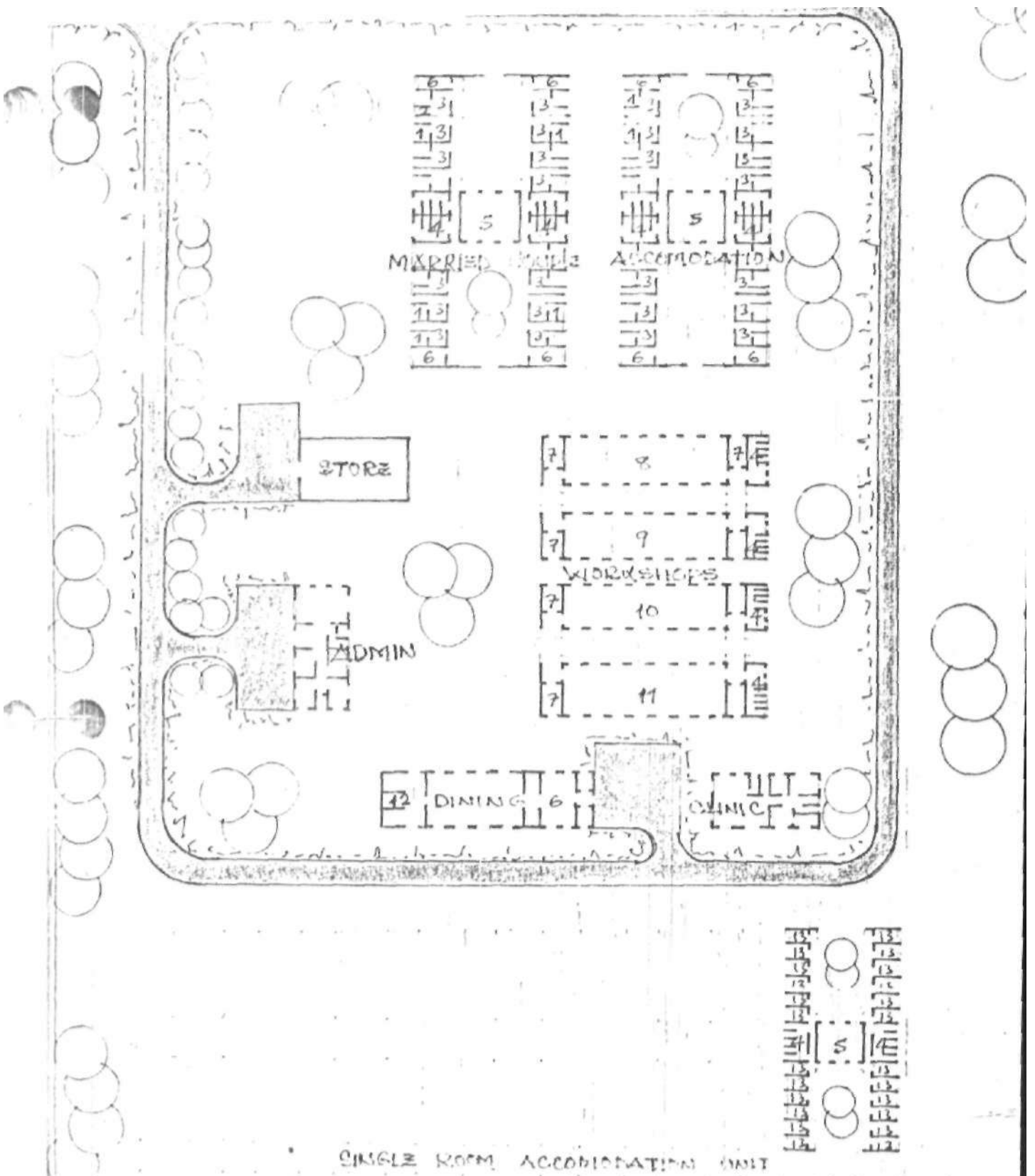


Fig 6.1 MARIRI REHABILITATION Complex, KANO

Appraisal

(1) No proper interrelationship is established between buildings especially the accommodation areas are scattered.

(2) All areas are built - up and no expansion is possible especially to the sorkshops side.

(3) No proper linkage in terms of covered walkways from one area to another

(4) Walkways are not roofed, hence difficult to utilize during rainy and sunny sessions

(5) No provision for wheelchair storage in both working and accommodation section.

(6) Sanitary and other services fittings adaptable to rehabilitees especially the wheelchair users. (fig. 6.1)

6.2.2. Rehabilitation centre for the Blind and Cripped, Kakuri - Kaduna

Location:

The centre is located in the southern part of Kaduna town at Kakuri. The land is relatively flat.

Aim

The aim of the programme of this centre is to train rehabilitees different vocational trades, however, with no attempt to normalizing the disabilities.

Scope

The centre was initially established to cater for about 500 rehabilitees, apart from staff housing. As of December 1986, the centre contains about 100 rehabilitees.

Planning

The centre has two main sections; the accommodation (living) and the working (workshops administration etc) sections. The buildings are scattered all over the site. Though the concept shows horizontality, there is no proper interrelation between the buildings. The administration block forms the central core of the centre.

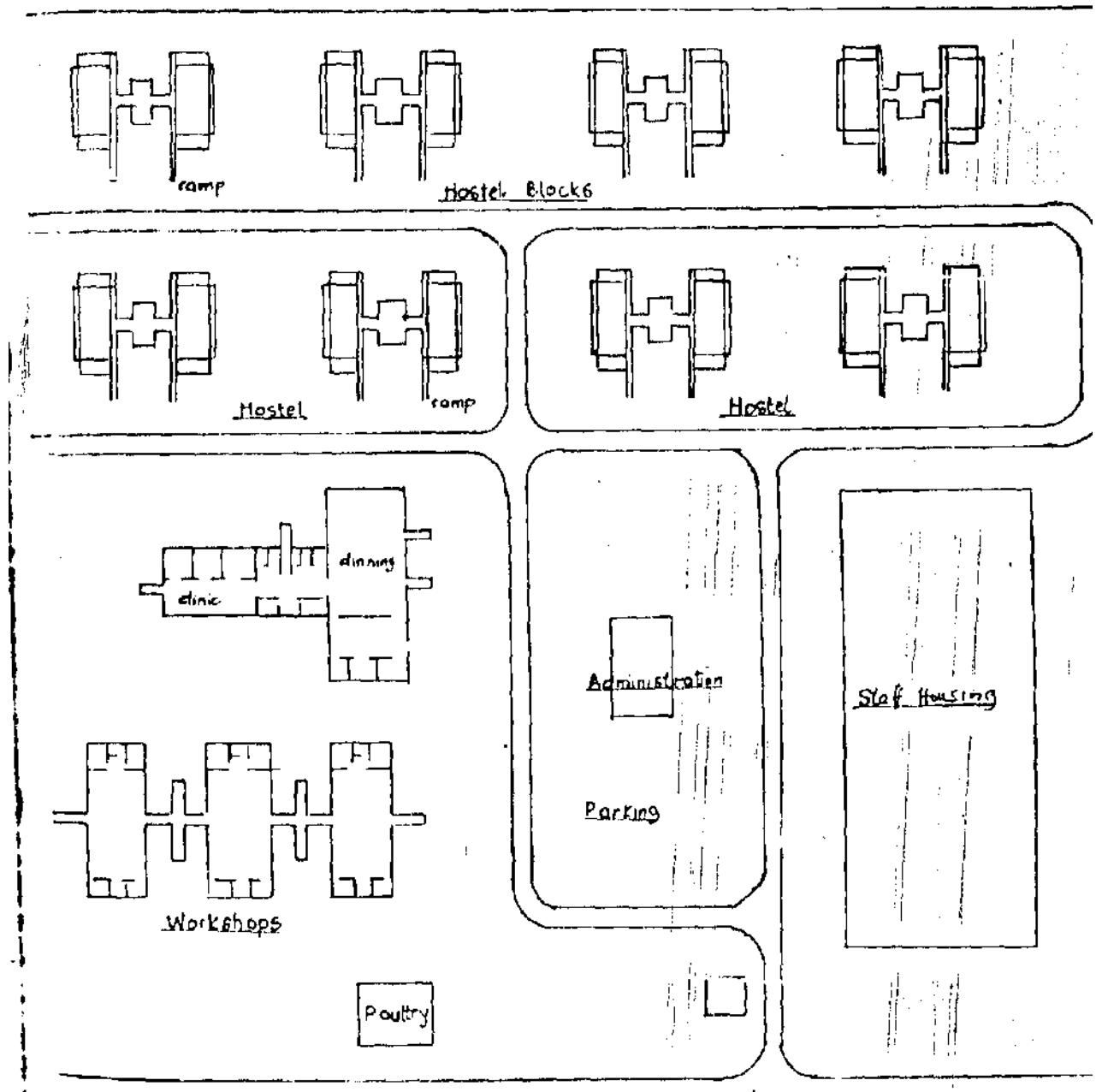
Appraisal

(1) Roads poorly designed; dangerous to the rehabilitees especially when crossing to the workshop area from the living section.

(2) The walkways are uncovered; no protection against sun and rain.

(3) Facilities not adaptable for rehabilitees use especially for the wheelchair users.

(4) Ramps in the accommodation units are too steep for wheelchair usage. (fig. 6.2)



REHABILITATION CENTRE FOR BLIND AND CRIPPLED
KAKURI ~ KADUNA

Fig 6.2

6.2.3. Centre for the physically Handicapped Dublin

The centre is situated at Vernom avenue, Clantaf, Dublin in a moderately low dense are onthe northern side of the city. Being a fast moving institutional area makes the centre enjoys a good working ties with the existing hospitals nearby.

History

The clinic opened in 1951 in a room at Penbroke Street. It developed in the1950s and early '60s in Goats town by the addition of a school, a therapautic swimming pool and workshops. In 1968, the new clinic was opened in Vernon street, Clantarf.

Aim

The clinic exists to treat and rehabilitate people with physical disabilities and to help them establish their independence and effective living within the community through a programme of medical, psychological, social and vocational evaluations.

Scope.

The centre has sheltered workshops, and day centre, and facilities for treatment by physiotherapy, hydrotherapy and occupational therapy as well as primary

school. It caters for all ages from birth to very old age. It attends to between 240 - 300 patients per week, with additional 100 in the workshops, 80 in school and a staff strength of 30.

The centre treats all kinds of cases like poliomyelitis, mascular dysthropy, asthma, cerabral palsy, multiple sclerosis, arthristis, congenital deformities and cases due to accidents.

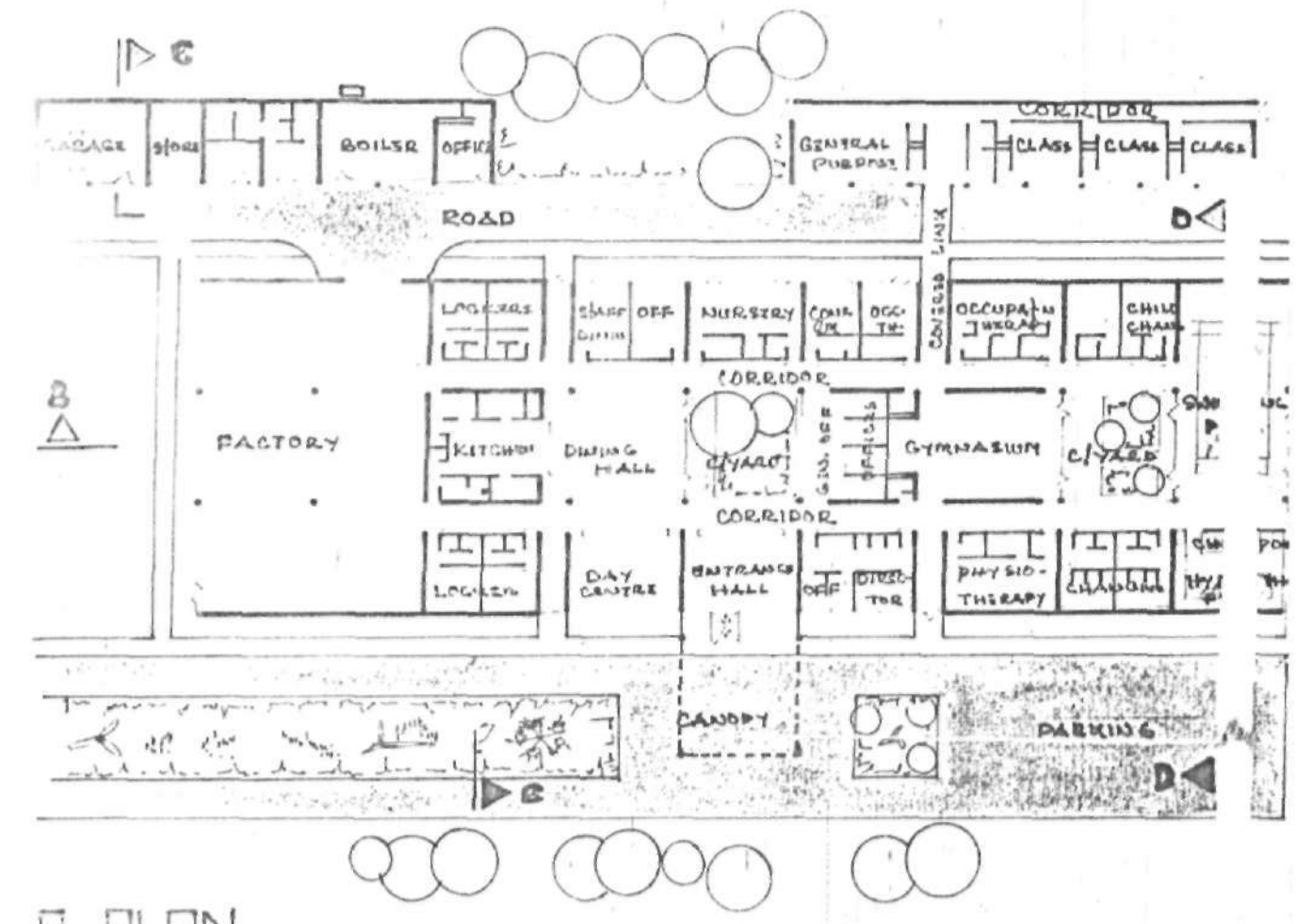
Planning

The aim is to revive the idea of an institutional building as a formal expression of community life. The building is a single-storey consisting of three $36.6m^2$ cells set one behind the other from North to south and separated by 3.05m corridors that terminate at fire exits.

The North cell is the working area, the middle cell is the administration while the southern cell forms the treatment unit.

The main entrance to the centre is on the western side of the central cell and opens into a central square the centre of which forms a $12.2m^2$ courtyard. The hall contains the entrance hall, day centre, consultation offices, conference room as well as the dining hall.

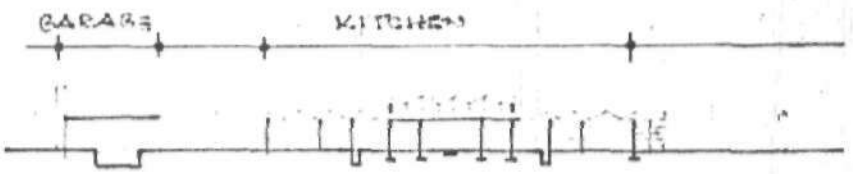
Fig 6.3 CENTRE FOR THE PHYSICALLY HANDICAPPED, DUBLIN



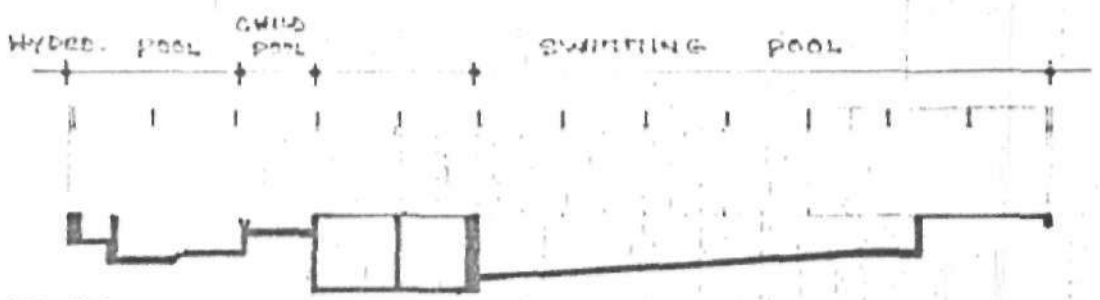
LR PLAN



TION B-B



TION C-C



TION D-D

The Northern cell contains essentially the factory with the kitchen. The southern cell built around another courtyard contains the occupational therapy physiotherapy, gymnasium and the swimming pools. The school and the boiler house are at the east wing of the building. The school has a lineal arrangement and is linked to the clinic by a covered walkway.

Appraisal

(1) Internal finishes used not ideal for the disabled usage
(2) No adequate storage facilities for wheel chair at the entrance
(3) glazing down to floor level provides feeling of no-privacy and obstructs movements.
(4) Sliding doors used too heavy to operate by upper limb disabled.
(5) Expansion to the therapy department is not possible (fig. 6.3).

6.2.4. Landale School for the Physically Handicapped Stevenage

Location

Located on the open chells neighbourhood of Stevenage. The land is high hill open ground.

History

Designed by G. Fardell and K. Begg for Hertsfordshire county council Education Committee, it is one of two such schools in the country. It serves the whole northern part of Hertsfordshire.

Aim

Its chief role is to provide centralized teaching facilities and expertise for children prevented by handicap from enjoying and benefiting from ordinary school life.

Planning

The whole complex is a single-storey building arranged round central courtyards. All teaching administration and working areas are arranged around the perimetre of a rectangle with three interior courtyards. The high core of the school contains the therapy departments and the Hall.

There are three main entrances to the building; the northern gate giving access to the primary school; the two others are on the western side under a large canopy leading to the administrative and working areas.

Residential accommodations are arranged on the eastern side on a long central spine which serves as

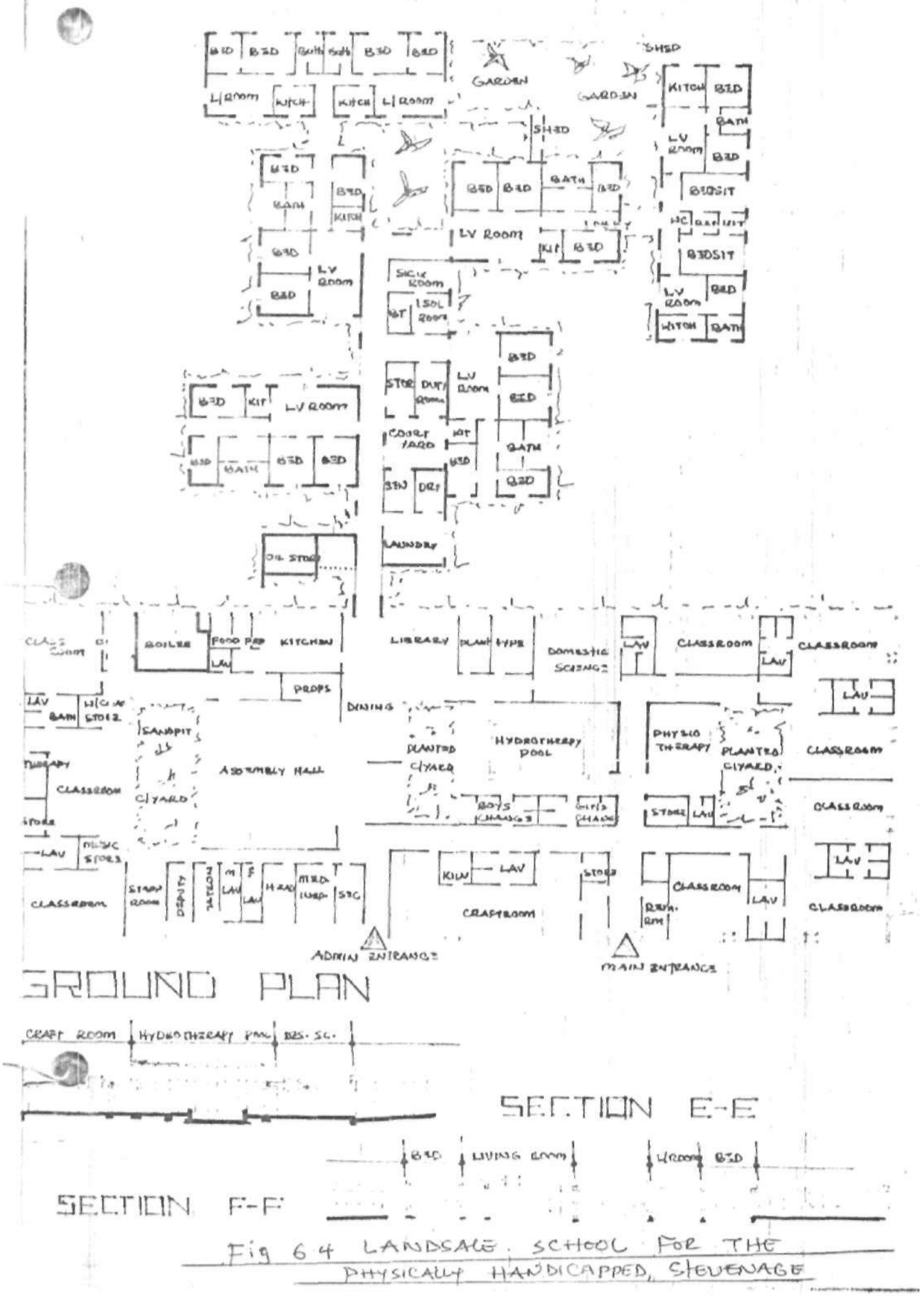


Fig 6 4 LANDSAGE. SCHOOL FOR THE PHYSICALLY HANDICAPPED, STEVENAGE

the connecting axis between this section and the main area.

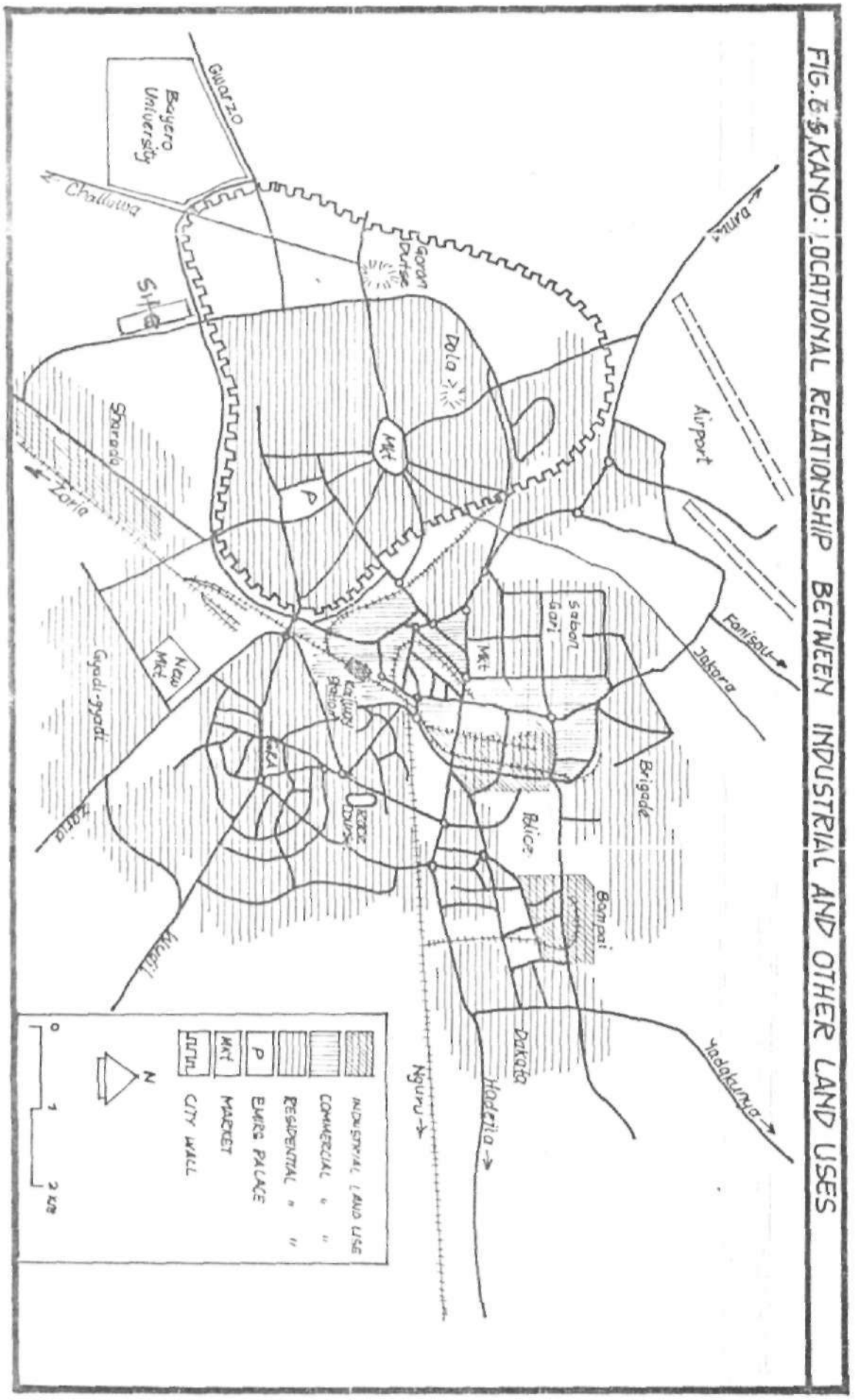
Appraisal

(1) Internal columns in the main corridor stand clear of the wall so that an ambulant child in need of help or support has to circom-naviage each column
(2) Ramped entrances have small channels at the thresholds which is an obstruction to the wheelchair user
(3) There is no privacy in the arrangements of bed spaces.
(4) The hight - parallel partitions can easily be damaged by wheel chairs.
(5) Outside facing rooms prone to solar gain on the south. (fig. 6.4.

6.3.0. Study Area

Kano is the administrative and commercial centre of Kano state in the federal Republic of Nigeria. Metropolitan Kano, the area of which this project is situated, covers an area of 67,843 hectares including urban Kano. It has a population of 650,000.

FIG. 6.5 KANO: LOCATIONAL RELATIONSHIP BETWEEN INDUSTRIAL AND OTHER LAND USES



Topography

Metropolitan Kano is situated on an altitude of 450 - 500m above sea level and is bordered by the rivers Tamkma (North) and Watari (west). The area consists of gently undulating plains; with a savannah type of vegetation.

Geology

The Kano Area is generally granites and migematites, covered by laterite and their topsoil. The upper parts of the laterite are mostly dried-out and often concreted laterite zones are encountered. There are frequent rock outcrops on the southern and eastern areas of Kano.

Climate

Temperature:- Extreme values in temperature occurs during the dry season which range from a low 73°C in January to a high 40°C in April. More moderate temperatures with less extreme values but coupled with high humidity, occur during the wet season.

Wind

Wind currents that occur cause the climatic seasons prevailing in the area. The dry season (October - April) is characterized by the tropical dry continental sahara winds (Harmattan) from North-east.

The wet season (May - September) is characterized by south-westernly maritime winds which carry warm and humid air.

Rainfall:- The mean annual rainfall amounts to 862mm and occurs mainly between May and September with a peak in August. From November to February, hardly any rainfall occurs.

Humidity:- Humidity is fantly high during the wet seaser (60 - 80%) and remains around 30% during the dry season, leaving its daily maximum at 70% in the morning and its minimum at 30% in the afternoon.

6.4.0 The site

6.4.1. The site selection criteria

An important variable of utmost concern in this thesis is the issue of selecting site for the project within the metropolitan Kano. The criticality in the selection of this variable is high that it needs special considerations before resolving. This is because the success of projects results when a land is developed in such a way that the building become most useful to the people to use it.

For a rehabilitation centre, factors like climate, topography, vegetation, location relation to facilities etc are important factors to its sitting and hence are the indices used in selecting the site.

Topography

Topography has an important role to play in both selection of the structure to use and movement behaviour of the users. Undulating and steepy land can make movement difficult. On the other hand, a gentle slope can help in drainage, and present fewer planning problems.

Relation to Facilities

As a specialized institution, a rehabilitation works in conjunction with other facilities hence its proximity to such related facilities like hospitals, public transportation, light industries and so on.

Accessibility

Access to a building is of prime importance. A good site should be accessible to both vehicular and pedestrian traffics i e. to say, it has to be near transportation routes for easy servicing. Isolation by no means increases the problems of transportation to those who might otherwise be out patients.

Location in the community

The sitting must also take cognisance of existing land use pattern of the community. As an institutional building, the site is supposed to be in institutional zone.

Relation to services

As intergral part of building core, services are important to the success of building projects. A site for a rehabilitation centre should be near services like power, water, telephone etc.

Expansion

The site should be large enough to accommodate the building proper, circulation areas as well as outdoor recreation. It should be in excess of present needs and give room for future expansion. Irregular and built up sites are not desirable.

6.4.2. Choice of site

Two sites are considered for selection based on the criteria set-out.

(1) A piece of land along Bayero University Kano, adjacent to the Institute of Education, central administration.

CHAPTER SEVEN

DESIGN CONSIDERATION

A successful design, it is said, is one that gives reasonable attention to the physical characteristics of the people to use it; one that satisfies the users requirements.

In designing for the physically handicapped the designer should not be deceived by the standards set down for the able-bodied. Rather, he should focus his attention to the limitations imposed on the disability into purposeful use. It is only on these considerations that the architect will find out what standards to use in order to bring out a design that could conveniently satisfy the users requirement (in this case the physically disabled).

It is ironical that buildings have always, are, and always will be geared to suit the two-legged able-bodied other than those propping on sticks or rolling about in wheelchairs. This is a challenge to the architects and it is what this thesis is set out to achieve.

Some common assumptions made by architects are that disabled people want always to be treated in the same way as normal people. The other view is that the disabled people want always to be independent. Whatever the case, people with physical disabilities

cannot use building if they are treated in the same way as the able - bodied people.

They prefer to be independent in every bit of their action; that is to say, they want to be able to approach building without much effort and to move their wheelchairs without encountering any obstruction.

Designing a Rehabilitation centre o for the physically disabled thus, calls for a special design. And because of this, I intend to look at the effect or otherwise of building elements, the finishes, services and the general spaces the special needs of the disabled people.

7.1.0. Building Elements and Finishes

A. External Elements:-

(1) Footways:

To allow for wheelchair users, pavements and so on should be not less than 1.200m wide to allow for wheel chairs to pass each other or wheelchairs to pass attendents with prams, footways should be not less than 2.00m wide.

Maximum pavement gradient for ambulant disabled and associated chair bond people is 1:12 . For independent

wheel chair users, pavement should have a gradient not exceeding 1:20.

(2) Footways:- Surfaces

Generally, non-slip surfaces are preferred for external circulation, rather than smooth in-situ surfaces.

Pavements, footways and footpaths should be of fixed, firm material. Suitable surfaces are bitumen macadam, tarma cadam and asphalt.

B. Ramps

(1) Ramps:- General considerations for wheelchair users, the entrance to any building must be levelled or ramped.

The building Regulations require that handrails should be provided to ramps, except where the side is formed by fixed seating. Irrespect of the purpose group or compactment:-

a) any ramp with a total rise of more than 0.600m shall be provided with a handrail,

(i) on each side, if the width of the ramp is 1.00m or more; and

(ii) one atleast one side in any case

(b) any such handrail shall

(i) be so designed as to afford adequate means of support to persons using the ramps;

(ii) be continuous for the length of the ramp;

(iii) be securely fixed at a height of not less than 0.800m nor more than 1.00m

(iv) be terminated with a scroll or other suitable means.

(2) Ramps: Gradient

Depending on the length and kind of users, recommended ramp gradients are:-

(a) ambulant disable people; 1:9 for ramp length of 3.00 ; 1:12 for length of 3.00 - 6.00 1:2 for length above 6.00m

(b) Independent wheelchair user: 1:10 for length up to 3.00; 1:16 for length of 3.00 - 6.00 and 1:20 for length above 6.00

(c) attendent wheelchair user: 1:9 for length up to 3.00; 1:12 for length of 3.00 - 6.00 and 1:20 for length above 6.00.

(d) all other users: 1:8 for length up to 3.00; 1:12 for length of 3.00 - 6.00

and 1:12 above 6.00.

(3) Ramps: Dimensional data

For general purposes, ramps which allow wheel chairs to pass each other, or pedestrians, minimum width is 1.500m.

At the foot of any ramp having a gradient of more than 1:12 there should where possible be a level area not less than 1.800m long.

(4) Ramps: Finishes

All ramps must be non-slip surfaces. This is because the hazard slip surfaces bring to other users than the wheel chairs (that prefer slip surfaces for easy maneuver) is significant.

A textured finish with coarse aggregate not finer than 0.010 is recommended. Polished concrete surfaces are dangerous.

C Handrails

(1) General Considerations:

Handrails and balustrades must be securely fixed.

Handrails must be provided to each side of any staircase or steep ramps.

Handrails should be provided to the sides of corridors.

Raised thresholds can be hazardous to ambulant disabled and elderly people and are obstacles to wheelchairs.

Where provision is made for disabled people and for reasons of containing rain water, it is necessary to have a low sill, the height of which should be not more than 0.025.

E. Windows

In buildings for the disabled people, windows should allow seated people to see the view outside.

In all living areas of housing for the disabled people, windows transomes should not be installed inside the zone between 0.900 and 1.200 above floor level.

Side-living windows and louvres windows are suitable for the crippled people.

F Doors

Where provision is made for disabled people, careful attention must be given to the placing and specifications of doors.

Doors in corner positions should permit easy approach.

Doors to small rooms should slide or open out instead of opening in.

In-opening doors to bathrooms and Wcs are not recommended.

Doors opening out into the passageways may be recessed to avoid accident hazards.

(2) Door sets

The use of standard door-sets means in practice tha where disabled people are to be catered for, only three door sets sizes are possible, namely 1.000, 0.900 and 0.800.

Doors other than these standard sizes can however, be purposely made.

Sliding doors are easier to manipulate and negotiate for wheelchair users.

Side-hung doors are preferred to sliding doors for people with hand or arm impairment.

Sliding doors are recommended for the workshops and theatres. Projecting handles are fixed to both sides of the sliding door for easy opening and closing by the rehabilitees.

For bathrooms and Wcs for the wheelchair users, sliding or bi-folding door may be more satisfactory

than a side-hung door.

Lever handles are preferred to knob handles. Knob handles do not provide an adequate grip of people with hand impairments. A lever handle can usually be operated with one or more fingers only, whereas a knob handle can not easily be operated without the use of the thumb.

C. Internal Walls

(1) Apart from normal load bearing duties such as carrying wash basins, sinks, cupboards and book-shelves, internal walls in buildings catering for the disabled people may need to be suitable for the fixing of personal support rails.

(2) Materials:-

Internal walls and partitions are generally either of prefabricated dry or wet fixed construction.

Bricks or blocks for net fixed construction should have a thickness of not less than 0.075.

Prefabricated partitions without extra reinforcement are generally not suitable.

Domestic sandwitch partitions, for example with a core of plaster board, flax board, polystyrene, or glass fibre and a facing of asbestos wall boards, hardboard, wood venear or pvc fabric are not satisfactory

and should be avoided where possible.

(3) Protection of wall finishes:-

Damage to wall finishes is caused at any level up to about 1.000. Therefore fitting of renewable protective panels to vulnerable areas is recommended; self-adhesive laminated plastic sheeting is suggested.

H. Floor Finishes

In any building planned for the use of the disabled people, a primary requirement is that the floor should be slip - resistant. Although for chairbound people a slip-resistant surface is not required, it is more important that the danger of ambulant disabled people slipping and falling is m minimized.

(1) Tiles:-

In ceramic or concrete tiled floors, the joints may afford a measure of friction to counter slipping. Most tiled floors, e.g. thermoplastic, Vinjl asbestos, PVC, linoleum and rubber are not less slippery because they are tiled than in-situ flooring.

(2) Resilience:-

For most disabled people, a comfortable floor in terms of resilience is desirable. Floor finishes with a felt or sponge backing are satisfactory.

(3) Bathroom floors:-

Bathroom floors should not be "cold" or slippery when wet. Ribbed or studded rubber tiles or sheets can be suitable. Alternatively, ribbed PVC sheet may be used.

7.2.0. Services

A. Water Services

For people with weak or arthristic hands conventional tap heads may be difficult to operate, hence an easy form of tap heads have to be specified to the disabled.

(1) Tap specification

(a) Toggle action taps

A toggle action tap (self-closing) may be suitable for people with arthristic hands or poor coordination (fig. 7.1).

(b) Spring-loaded taps

Spring-loaded self-closing taps, which need to be pushed down for operation, should be avoided.

(c) Screw - down taps

This type of tap is installed a fitting having

a plastic thread requires less effort to open and close than the conventional taps.

A fitting with a broad head, for example (fig 7.1) may be comfortably operated by a disabled person using the palm of the hand.

(d) Lever action taps

For people with weak hands, a lever action fitting is preferred to a screw-down value (fig. 7.1).

(2) Taps Location

For basin and sink taps, there should be a clear dimension of not less than 0.035 between the tap handle and any adjacent vertical surface.

The hot water tap should be placed to the left of the cold water tap.

B. Electric services, lighting

(1) Location

Switches by doors should be horizontally aligned with door handles.

The recommended fixing height of light switches is 1.040 above floor level. This height is suitable to the ambulant disabled people, elderly, and the chairbounds.

Knob pulls for ceiling switch cords should be at 1.000 above floor level. Where for any reason, higher position is preferred, the high height should not exceed 1.200 for the chairbound and 1.500 for the ambulant disabled.

(2) Specifications

For people with severe hand impairments or lack of coordination, a switch where the whole plate operates as a rocker is recommended (fig. 7.2)

An illuminated switch or surround identifying the switch position can be a help where switches may need be located in darkness.

No more than two switches should be grouped together.

(3) Location of socket outlets

Socket outlets must be carefully positioned in places where they are most needed.

Where there are two sockets in a room they should preferably be located on opposite walls.

Where possible, socket outlet should be at the same level as light switches and door handles, at about 1.040 above floor level. No socket outlet should be lower than 0.500 above floor level.

7.3.0 General Spaces

A Entrances

All entrances for the use of the wheelchair users should be ramped to the gradients specified earlier.

Where the entrance door is not recessed a canopy should be provided at the entrance to a building. For wheel-chair users, the canopy should project not less than 1.000.

At entrance to buildings where allowance is made for wheelchair users, there should be a platform at the head of any approach ramp.

In public buildings and in special buildings for the handicapped people, passages should not be less than 1.2000.

For two wheelchairs to pass each other conceniently passage need be 1.700 wide

Where passage is relatively narrow (1.400) provision for passing bays is recommanded.

B Bedrooms

Bedroom for the physically disabled should allow for wheelchair maneuvre with adequate access to

areas like the wardrobe, dressing tables etc. Bedroom should also be planned to allow for choice of bed positions, one of which must allow a view to the outside through the window (figs. 7.3)

(1) Bedsizes

To standard bedrooms for the physically disabled, bed sizes recommanded are 0.900 x 2.00 long and double beds of 1.500 wide x 2.000 long.

(2) Bedmaking

To allow for bedmaking from wheelchairs substantial extra space is required in bedrooms.

In single or two persons units, bedroom planning should allow, where beds are placed against walls, for beds to be slid out easily to facilitate bedmaking.

To permit bedmaking from a wheelchair the width of the clear space on either sides of a double bed should not be less than 1.000.

(3) Wheelchair turning

To allow for wheelchair turning, there should be a clear space in the bedroom not less than 1.450 wide (fig. 7.3).

Alternatively, planning may allow for a 3-point turn. The three arms of turn should be not less than 1.100 wide.

(4) Transfer from wheel chair to bed

Where bedroom allow for access only, the clear space dimension at the side of the bed should preferrably be not less than 1.100 where bedrooms are planned for wheel chair use, the clear dimension on the side of the bed should not be not less than 1.200 (fig. 7.3) A person who is chair bound needs more space than this.

Bedrooms planned for the paraplegics should allow for the wheelchair to approach at right angles to the bed.

(5) Bedroom storage

Bedroom storage should be provided in rooms for the disabled people, for items like prostheses, sticks etc. Wall hooks for the hanging of sticks etc. may be fixed to the wall adjacent to the bed.

C <u>WCs</u>

The standard WC compartment size 2 x 1.5m is recommended. It allows for the three types of transfers; namely lateral, frontal and oblique.

This also always sufficient space for a man in wheel chair to maneuver and position himself. (fig. 7.4).

(1) Door planning

The preferred door positions to a Wc compactment is one opening outside (fig.7.4). The door hanging should be to the sides shown in the figures.

(2) Height of Wc seat

The seat should be between 0.460 to 0.500 above floor level to conform to the height of wheel chair seat (0.470 - 0.490).

(3) Bowl Urinal

The are sutable for wheel chair people where the rim is low and the fixture project sufficiently far from the wall, to allow for access below by wheelchair footness.

D Bath

(1) Dimensions

The preferred bath dimension and associated platform is 2.00 x 0.800. This ensures overall space for wheelchair use.

Clear dimension in front of the bath to allow for frontal transfer should not be less than 1.400 (fig. 7.5).

E Wash Basin

Wash basins should be easily operated by the wheelchair users. Hence, their positions heights and type are dictated by the requirements of the wheelchair user rather than those of the ambulant disabled.

Wash basin for wheelchair users should be planned to allow for oblique approach where lateral approach is not practicable because of obstructions.

For convenient wheelchair access to the basin, the clear utilization space in front of the basin should be minimum 1.150 x 1.050.

For wheel chair users, convenient height for the basin rim ranges from approximately 0.670 to 0.820.

F Shower

Where a shower compactment is planned for use by a handicapped person seated in a portable chair, it is desirable that there is no plinth,

Kerb or similar obstacle to wheelchair.

An enclosing dampproof membrane of height not less than 0.060 from floor level is used to prevent water flooding out of the compactment.

For wheelchair provisions, shower area is set about 0.040 below the adjoinin floor.

In shower compactment, floor should be laid to fall to gully.

(1) Shower area

The minimum dimension for a shower area or compactment planned for chair access should be 1.200 x 1.200 (fig. 7.6). Area of 1.500 x 1.500 preferred.

A shower compactment for disabled users should have a bench seat, with the dimension across the compactment minimum 1.050. Wheelchair transfer is facilitated where bench is on the approach side rather than on the wall side (fig. 7.6).

(2) Shower seat

The suggested shower seat should have a height of 0.400 above the level of the floor outside the compactment.

The seat should be placed on a side wall rather than on the rear wall, allowing for transfer by wheelchair users.

The suggested depth (front to back) of a seat is 0.350.

(3) Support rails

Shower compactments hould have support rails on walls to enable or give support to the disabled against slipping or falling.

A vertical rail should be fixed at the entrance to the compactment on the wall opposite the showere seat, extending from 0.900 to 1.000 above floor level.

(4) Floor finishes

Floor finishes inside the shower compactment should be impervious and slip-resistent.

G Mirrors

For ambulant people, the head of the wall fixed mirror ought not be lower than 1.800 above the floor level. The base ought not be higher than 1.300m.

For wheelchair users, the base of the mirror should not be higher than 0.900 above floor level. and preferrably 0.750.

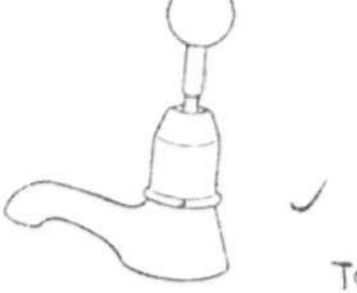
7.4.0. Anthropometrics

Sitting on his drawing board, the architect does not give a searching attention to the physical characteristics of the people to use his building, only in rare cases does he mind to know. In all other circumstances, he takes it for granted that the people will be "normal" people.

For the typical architect, the application of the principles of anthrophometrics to the design of his buildings is not an affair of science; all that's enough for him is that he knows the height of average man his sizes and reaches. So when he is designing, all he needs to do is to take away or add few centimetres here and there.

Thus in the course of building, it is the disabled person that is left out. To really satisfy their needs, buildings for the physically disabled people must thus bear in mind the limitations or otherwise of these people that's to say, their authropometrics should be a guide to any design decision.

Design of spaces and fittings in this thesis are based on authropometric data by Selwyn Goldsmith, in her book Designing for the Disabled. (figs. 7.7).



Toggle Action Tap



Switch
clean taps



a

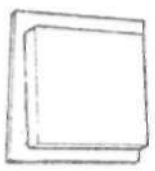


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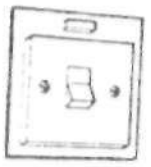


Single Action
lever tap

Fig 7.1 Taps

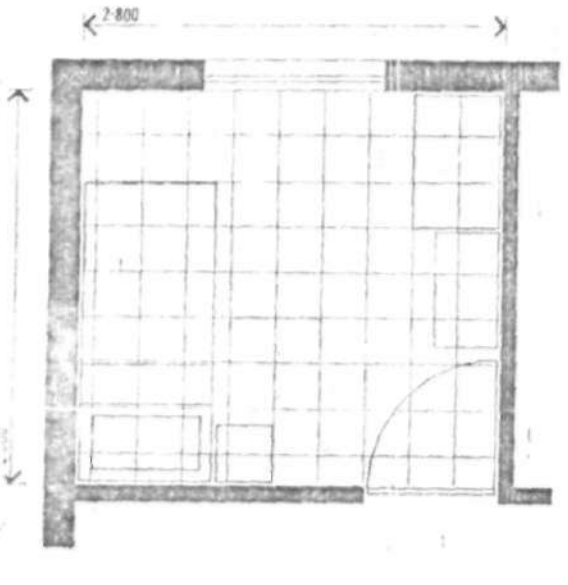


Locker Switch



Neon Locator
Switch

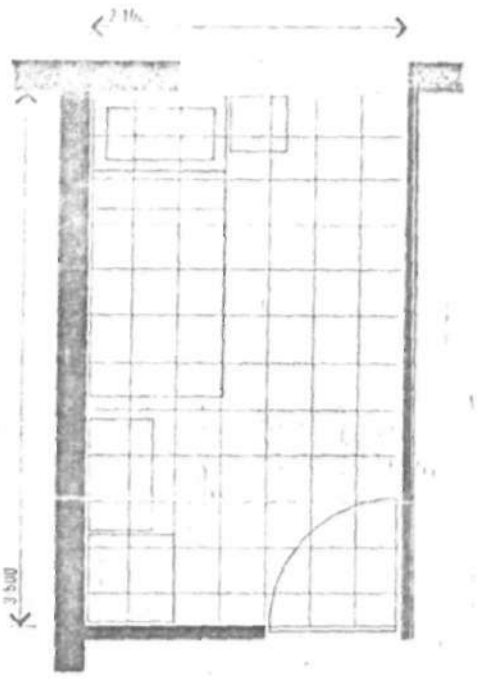
Fig 7.2



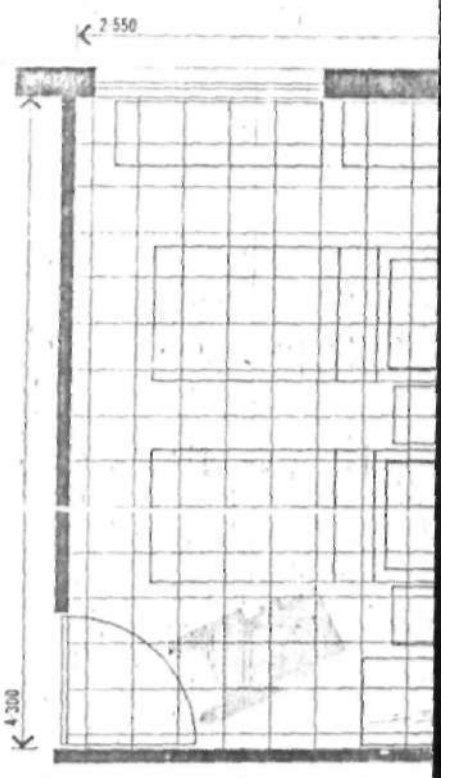
53.1 Bedroom planning: Single bed, wheelchair use (1:50)



53.3 Bedroom planning: Single bed, w access (1:50)

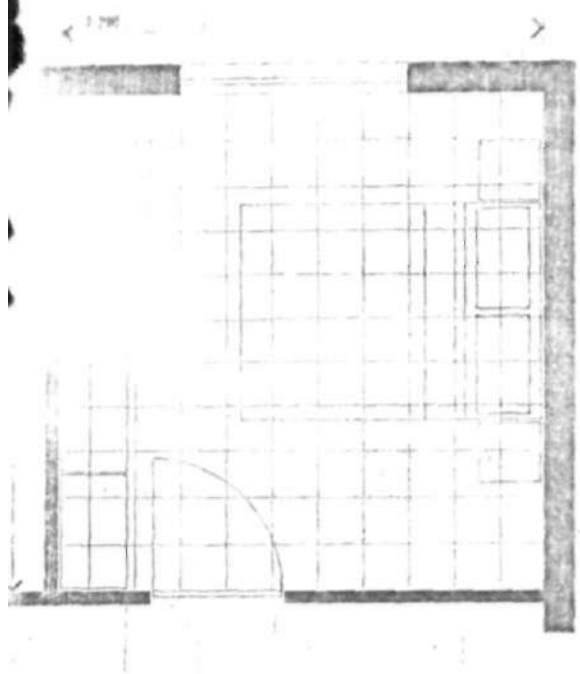


33.2 Bedroom planning: Single bed, wheelchair use (1:50)

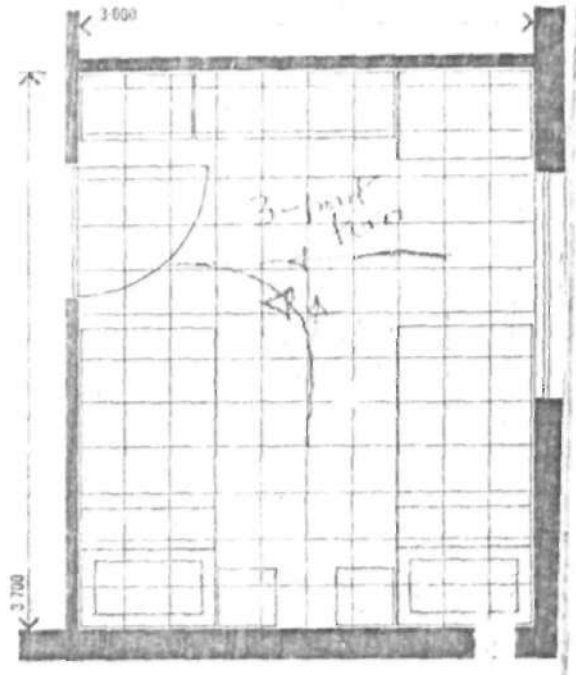


53.4 Bedroom planning: Two single be wheelchair access (1:50)

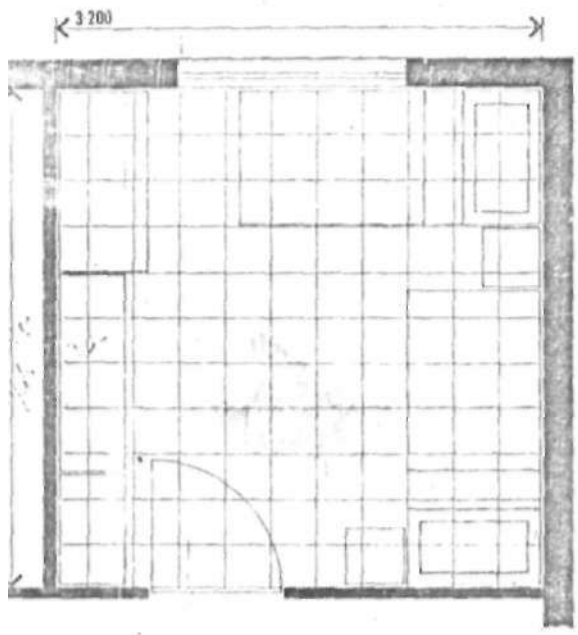
Fig 7 3



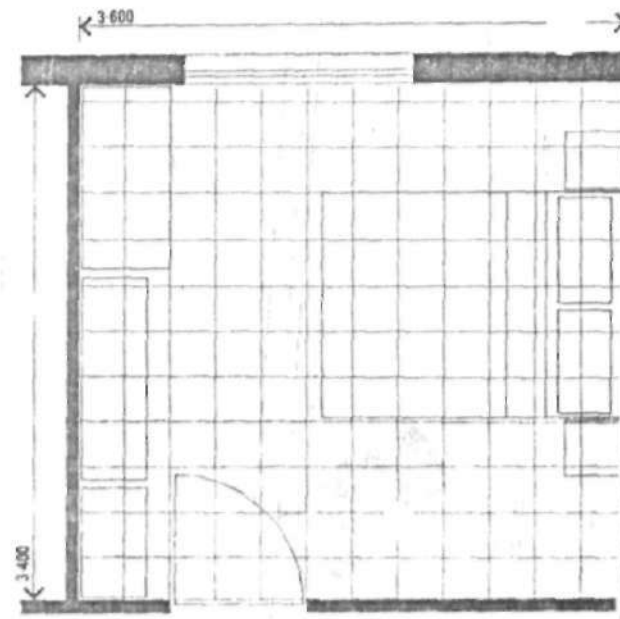
3.5 Bedroom planning: Double bed, wheelchair access (1:50)



53.7 Bedroom planning: Two single beds, wheelchair use (1:50)

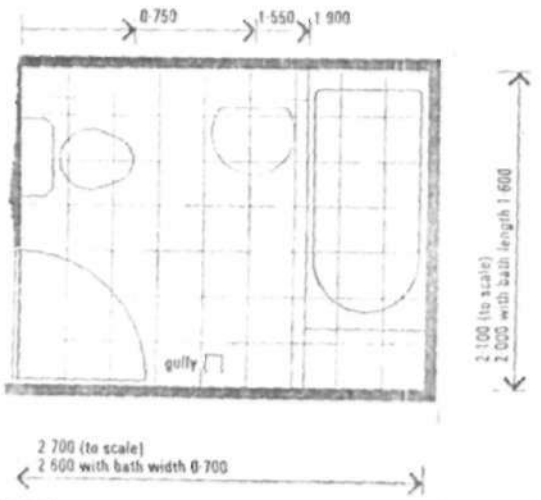


3.6 Bedroom planning: Two single beds, wheelchair use (1:50)

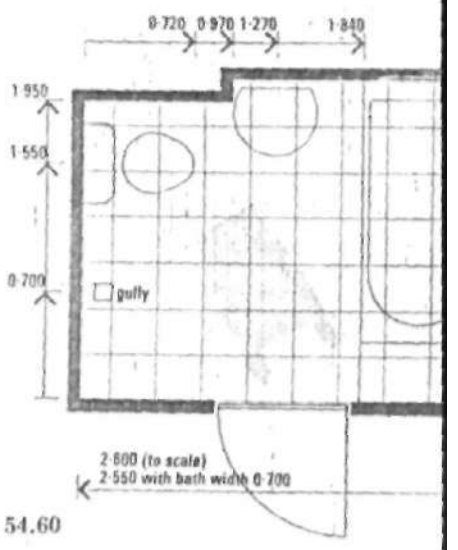


53.8 Bedroom planning: Double bed, wheelchair use (1:50)

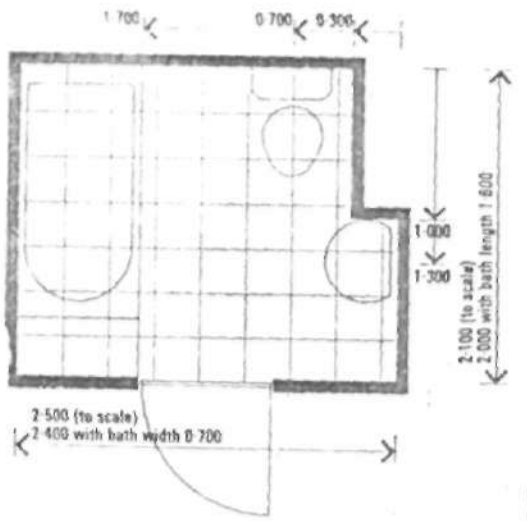
Fig 7.3



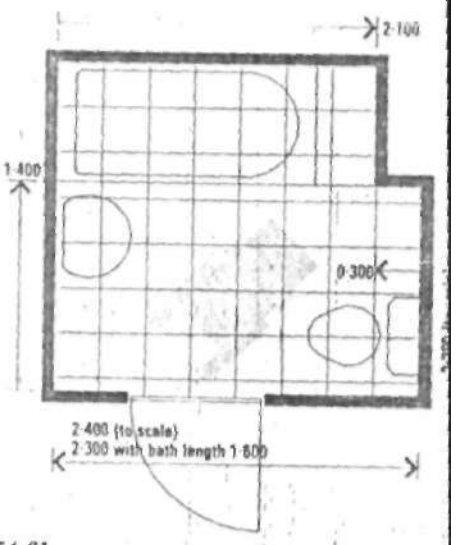
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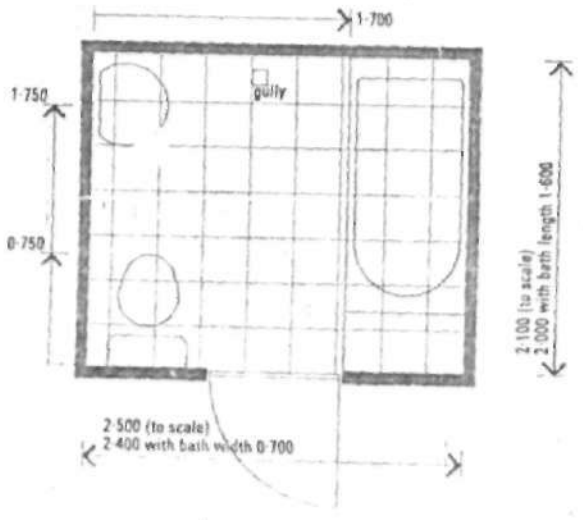
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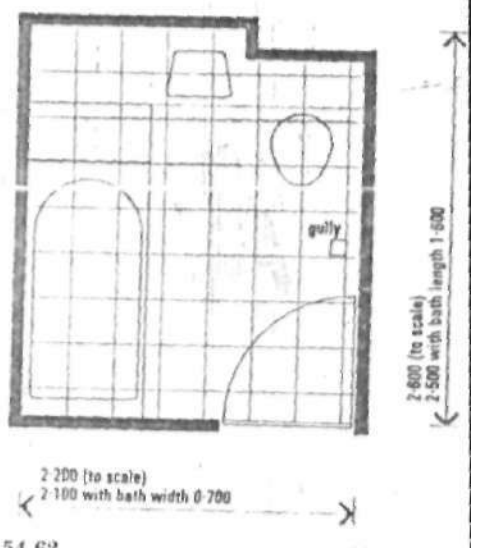
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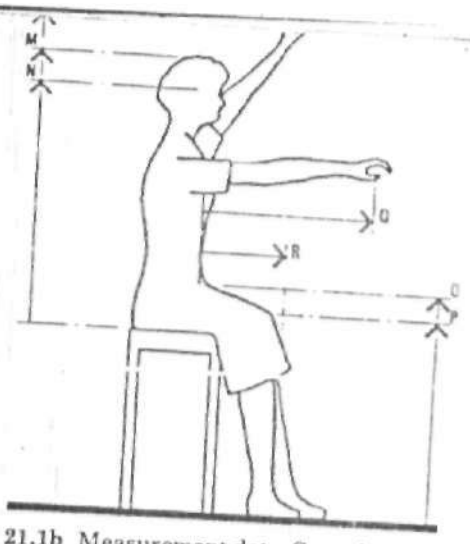


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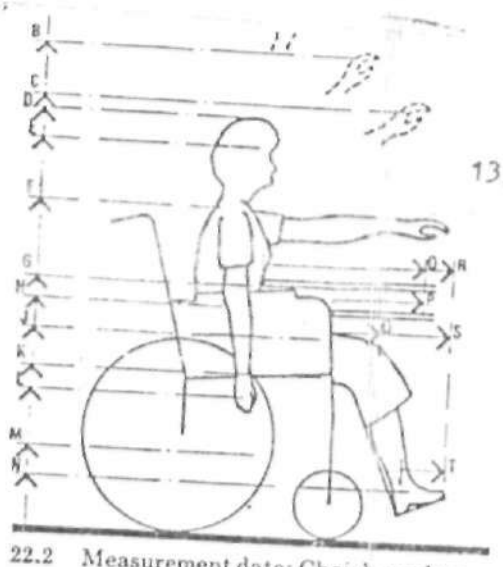


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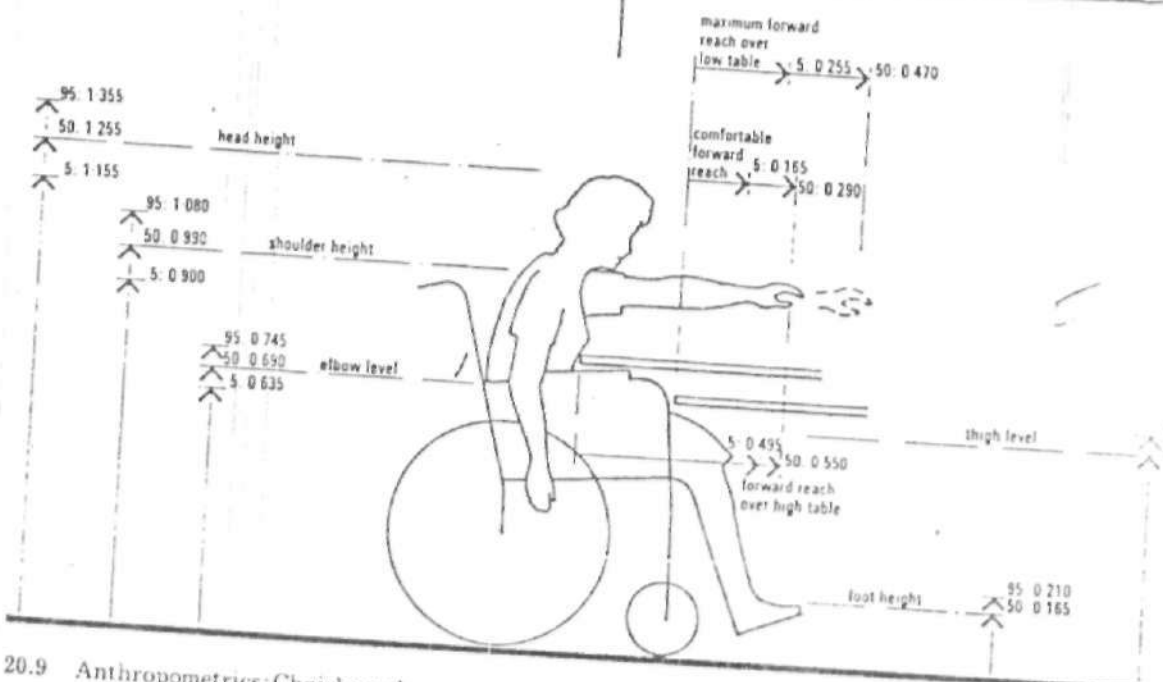
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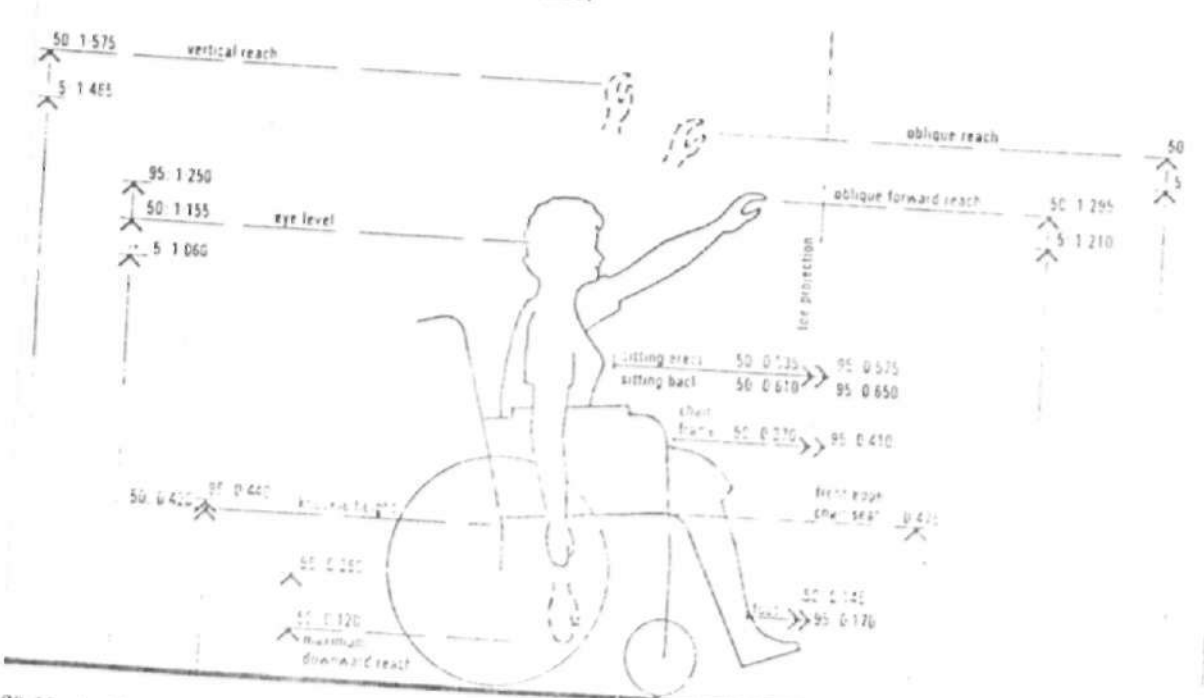
21.1b Measurement data: Seated person.



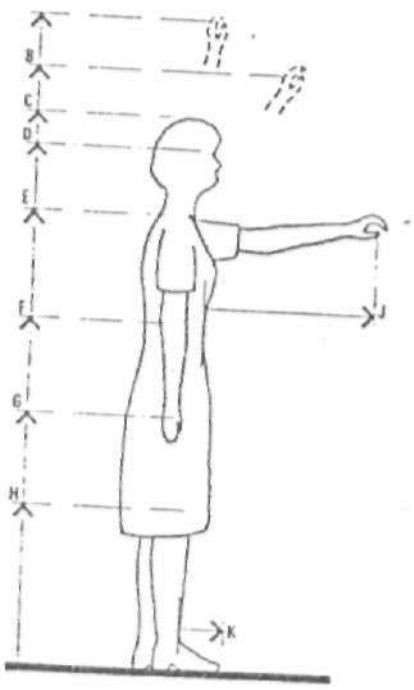
22.2 Measurement data: Chairbound perso



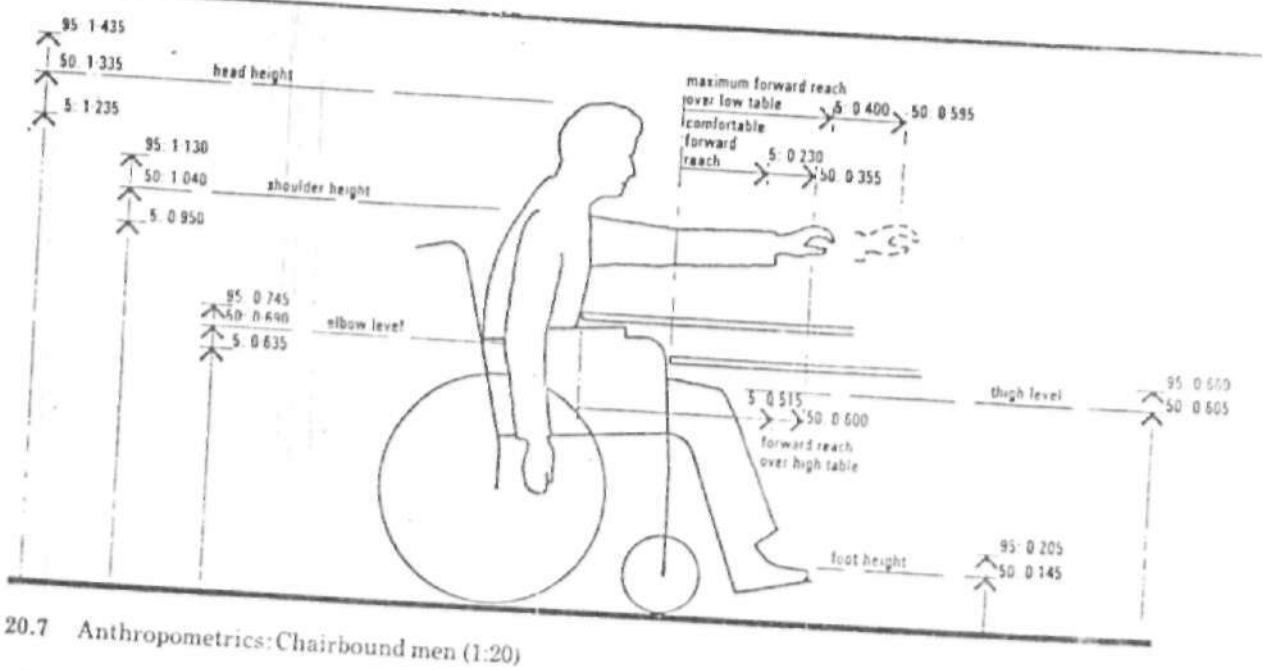
20.9 Anthropometrics: Chairbound women (1:20)



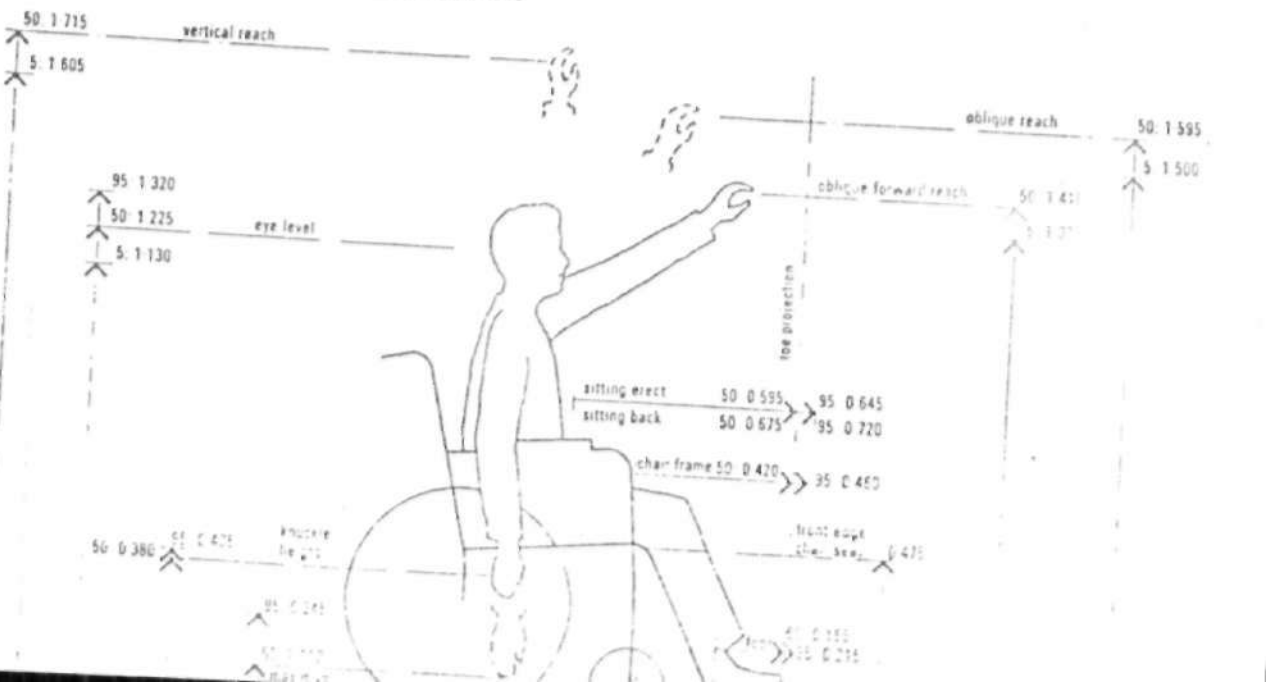
20.10 Anthropometrics: Chairbound women (1:20)



21.1a Measurement data: Standing person.



20.7 Anthropometrics: Chairbound men (1:20)



CHAPTER EIGHT

DESIGN PROPOSALS

8.1.0 Brief

From the summary of the previous chapters, certain general conclusions could be drawn as regard the problems and needs of the disabled people in genral. The observations made by the Author are:-

(1) Societal attitudes contribute to the problems of the disabled peoples.

(2) Major causes of disability are still in the increase in our society.

(3) lack of proper and suitable facilities to cater for the needs of the disabled

(4) No good Government policy on Rehabilitation in the nation.

(5) Existing centres (Rehabilitation centres) are only training workshops, they lack treatment facilities to normalising the disability.

(6) Semi - intergrated courtyard buildings or planning best for disable's atmosphere.

A look at the above conclusions, calls for the setting-up of a comprehensive Rehabilitation centre for the physically disabled.

The proposed centre will be for both treatment

and rehabilitation. Both in - and out - disabled patients are to be catered for so to receive a thorough medical, therapeutic and vocational evaluations together with other related services. The out-patients will however, be receiving medical treatments only.

Based on these two functions, the centre will have the following facilities:-

(1) Medical Section

The therapies

Diagnosis facilities

Ancilliary facilities

(2) Social Adjustment Section

Social Evaluation and counselling

Psychological evaluation and counselling

(3) Vocational Training

Training workshops

vocational evaluation facilities

special education classes

sheltered workshops

(4) Accommodation

In-patient Accommodation

Related facilities.

(5) Services

Dining Hall

Kitchen

Laundry

Maintenance section

8.1.4. Capacity of centre

With Kano State harbouring the highest proportion of the disabled in the nation, it will be difficult to readily ascertain the capacity of this proposed centre without looking at some variables highlighted below:-

Kano state population (1983)	-	9,500,000
Kano state population (1986)	-	11,250,000
Population of destitutes in the state (1983)	-	1,480,000
Population of physically disabled in the state (1983)	-	349,000
% of physically disabled	-	3.4%
Projected population of Destitute in the state (1986)	-	1,237,000
Projected population of physically disabled in the state (1986)	-	420,000
Population of physically disabled in Rehabilitation centres in the state (1986)		230

% of those in centres to thos outside centre - 0.05%

It is observed that socio-cultural factors and lack of adequate facilities in centres are major causes of poor attendance to rehabilitation centres.

Thus a well equipped centre might attract about twice the number of disables presently in rehabilitationcentres in the state. Or more precisely 0.1% or 420.

However, because of its function as a centre for both treatment and Rehabilitation, coupled with the complex nature of the disabled people the thesis will limit its scope to 200 disabled patients.

8.2.0. Model Rehabilitation Procedure of Patients in the centre

A model movement pattern of all disabled patients in the proposed rehabilitation centre is essential to both the planning of the centre and general understanding of its services (Table 8.1).

The category of patients coming to the centre are two:- New and old (referred to as out-patients).

For the new disabled patient, and after all necessary pre-registration procedures completed,

medical examination and evaluation are conducted to assess his disability. Depending on the nature of the disability, the disabled is either discharged, [illegible] or [illegible] treatment as an out-patient.

On admission, the disabled patient will undergo further examination and evaluation for him to be prescribed a programme in one of the therapies; physical, occupational or social adjustment. He will undergo this treatment for about two-three month depending on the nature of the disability.

After successful treatment, the disabled is then prescribed a training programme (after having undergone vocational testing, evaluation and counselling) in one of the training workshops. This will be for a duration of about a year.

To complete his rehabilitation prgramme, the physically disabled then practices his skill in the sheltered workshops for a period of four - five months, after which he is either discharged or retained with the centre as an employee. (Table 8.1.)

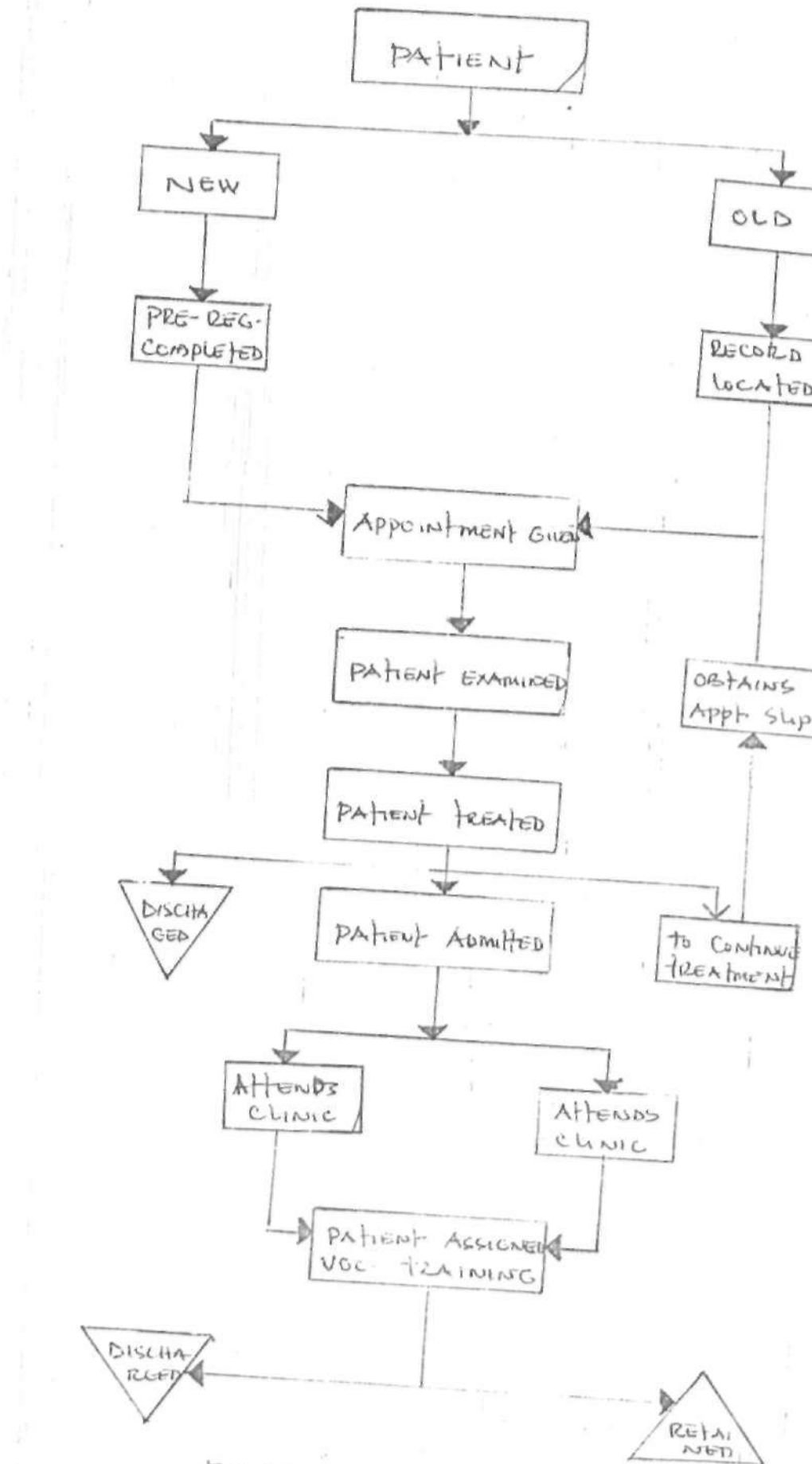


Fig 8.1 MODEL REHABILITATION — PROCEDURE

3.3.0. Schedule of Accommodation

Administration
Adminstration

Director's office	-	36.00m^2
Secretary	-	12.00m^2
Assistant Director	-	30.00m^2
Secretary	-	12.00m^2
Personnel secretary	-	25.00m^2
Welfare officer	-	25.00m^2
Matron's office	-	12.00m^2
Executive officer	-	12.00m^2
Accountant	-	12.00m^2
Account clerk's office	-	48.00m^2
General office	-	48.00m^2
Conference Room	-	48.00m^2
Staff room	-	48.00m^2
Reception/waiting	-	50.00m^2
Record Room	-	30.00m^2

Diagnosis

Patients General waiting	-	140m^2
Physicians' offices	-	12.00m^2 (6iin no.)
Examination Rooms	-	9.00m^2 (6 in no.)
Orthopeadist offices	-	12.00m^2 (2 in no.)
Neurologist office	-	12.00m^2
Cardiologist office	-	12.00m^2

Records office	-	9.00m^2
Appointment Room	-	9.00m^2
Records Room	-	50.00m^2
Waiting Area	-	80.00m^2
Staff conference Room	-	50.00m^2

Radiology

Patient Waiting Area	-	21.00m^2
X-ray Room	-	36.00m^2
Dressing cubicle	-	9.00m^2
Radiologist office	-	9.00m^2
Dark Room	-	9.00m^2
Light Room	-	9.00m^2

Pharmacy

Patient Waiting Area	-	45.00m^2
Dispensing Area	-	35.00m^2
Preparation Room	-	
Store	-	10.50m^2
Pharmacists	-	9.00m^2

Prosthetic/Orthetic Shop

Waiting/Reception Area	-	18.00m^2
Exercise Area	-	40.00m^2
Shop	-	12.00m^2
Fitting Room	-	6.00m^2
Casterina Room	-	18.00m^2

Offices - $9.00m^2$ (3 in no.)

Store - $10.50m^2$

Physical therapy

Staff - patient ratio = 1:10

Rated Bed Occupancy treated at a time = 30%.

∴ no. of patients treated

$= \frac{30}{100} \times 200 = 60$

No. of physiotherapist

$= \frac{60}{10} = 6$

Treatment cubicles - $12.00m^2$ (6 in no.)

Scheduled patient waiting Area - $30.00m^2$

Gymnasium

Floor area/1 physiotherapist $= 60m^2$

∴ For 6 physiotherapist - $360.00m^2$

Wax Treatment Rooms - 12.00m^2 (2 in no.)

Store = 7.2% of gymnasium

area = $\frac{7.2}{100}$ x 360 = 25.92 - 25.00m^2

Disposal Room - 9.00m^2

Splint Room - 12.00m^2

Head of Department - 30.00m^2

Secretary - 9.00m^2

Physiotherapist offices - 9.00m^2(5 in No.)

Remedial Gymnast 9.00m^2(2 in no)

Patient General Waiting - 54.00m^2

Hydrotherapy

Tank and Therapy pool Room

Area/1 physiotherapist

= 38.00m^2

:. For 6 physiotherapist - 228.00m^2

Whirl-pool Rooms - 6.00 (4 in No.)

Patient changing Room

Male: 3 shower + 2 WC - 30.00m^2

Female: 2 shower + 2 WC - 24.00m^2

Staff changing room - 12.00m^2

Patient waiting Area/Reception - 30.00m^2

Store - 9.00m^2

Wheelchair storage - 21.00m^2

Occupational Therapy

Rated Bed capacity treated at
a time = 40%

$$= \frac{40}{100} \times 200 = 80$$

Workshop

Area/person in workshop = $4m^2$

:. for 80 - $320m^2$ - $320m^2$

Changing Room

Male: shower + WC	-	$24.00m^2$
Female: shower + Wc	-	$12.00m^2$
Head of Department	-	$25.00m^2$
Secretary	-	$9.00m^2$
Occupational Therapists offices	-	$12.00m^2$ (3 in no)
Art Therapist	-	$12.00m^2$
Craft Therapist	-	$12.00m^2$
Reception/Waiting Room	-	$24.00m^2$
Activities of Daily living section		
Kitchen	-	$21.50m^2$
Bedroom	-	$12.00m^2$
WC/shower compactment	-	$8.00m^2$
Living/Dinning Area	-	$20.00m^2$

Social Adjustment

Head of Department	-	25.00m^2
Secretary	-	9.00m^2
Social workers offices	-	12.00m^2(5 in no)
Psychologists offices	-	12.00m^2(3 in no)
Psychological evaluation Room	-	30.00m^2
Psychological group work	-	60.00m^2
Social case Room	-	30.00m^2
Social Group Room	-	50.00m^2
Waiting Area	-	60.00m^2

Vocational training

Six training workshops each	-	54.00m^2
Changing Room		
male: 3 showers + WC	-	30.00m^2
female: 2 shower + 1 Wc	-	18.00m^2
General store	-	120.00m^2
Three special Education		
Rooms each	-	60.00m^2
Staff Room	-	35.00m^2
Head of special Education	-	30.00m^2
Cocational Evaluation offices	-	12.00m^2
Head of Vocational training	-	25.00m^2
Secretary	-	9.00m^2

Sheltered workshop

Six workshops each	-	81.00m^2
Workshop stores each	-	18.00m^2
Finished Goods store	-	60.00m^2
Sales/Exhibition Hall	-	42.00m^2
Sales office	-	9.00m^2
production Manager	-	25.00m^2
Assistant Production Manager	-	25.00m^2
Sales Manager	-	25.00m^2
Secretary/waiting	-	12.00m^2
Accountant	-	25.00m^2

Service Area

Dinning Hall

50% of Rehabilitees expected

to each at a time

$= \frac{50}{100} \times 200 = 100$ people

Area/wheelchair user = 3m^2

For 100 Rehabilitees - 300.00m^2

Kitchen

$\frac{1}{3}$ of Dining Hall Area

$= \frac{1}{3} \times 300 = 100$ - 100.00m^2

Store

To allow for Storage of stuff

Up to 30 days, Area

= ½ of kitchen Area

= ½ x 100 = 50 - 50.00m^2

Laundry - 80.00m^2

Workers changing - 60.00m^2

Maintenance - 30.00m^2

Accommodation

Bedroom

2 persons per room each - 14.00m^2

Recreation Hall (multipurposes) - 120.00m^2

Toilet facilities - 24.00m^2

CHAPTER NINE

DESIGN REPORT

9.1.0. Concept Development

The developments of a site organization and that of a design concept are two issues evolving simulteneously and interdependently, undergoing a secuential development pattern. Before a site structure is evolved, some basic factors like the functional interrelation of main departments or units, relationship of these units to site issues, relative noise level between them and so on, were considered.

Noise level factor

Vocational training and sheltered workshops, and the services departments are considered the most noisy areas of the centre and thus are zone together. The therapies together with the diagnosis area are considered moderate noisy area and thus zoned next to the most noisy zone. The nursing and non-nursing accommodation, because of their relative less noisy character is zoned away from the rest of the units. This consideration gives a hierachial pattern of site organization with the most noisy areas

--

placed by the side of the main road (which is noisy too) and all the other placed relative to it depending on its noise level.

Functional Relationship factor

Noise level criterion is not enough to distribute these functions on site. The functional interrelationship of these functions is considered too. By this criterion, the model rehabilitation procedure forms the standard where the functions follow a "process line". The therapies are grouped together and placed side by side with the diagnosis area for easy and effective coordination. Vocational and sheltered workshops are taken away from these units. This consideration places the medical unit (consisting the therapies and diagnosis area) at the main approach into the site.

Site constraints

Of all the site issues, access from and into the site is the most critical factor considered Access into the site is determined based on the analysis of the only two roads leading to the site. The north-west dual carriageway is considered unsuitable because of high traffic volume. An arrangement of the functions on site

based on this criterion places the medical unit close to the main approach and all other units either behind or adjacent to it.

The evolution of a site structure based on the above factors called for a selection of a particular organizational concept that best obey the arrangements proposed in the structure diagram. Three concepts are considered below:-

The Ring Concept

The concept, as the name suggests, has a circular organization of the various units or functions. A design based on this concept has an effective cyclic interrelationship of functions. It also provides a compact form of design. On the other hand, the concept has a characteristic rigid planning which makes expansion difficult.

The star (Radial) Concept

By this concept, the main functional area is the mucleus from where all other functions radiate. The concept has the advantage of an effective functional relation

between the units; all other units are linked to the main central unit. The units also have the ability to expand in an organic manner. However the concept is not without some shortcomings; flexibility is not easily achieved while the central function has a least chance of expanding.

The Net - Grid Concept

This pattern of organization offers the greatest flexibility. Its modular structure make the units to be extended without interrupting the whole organization. The pattern however, leads to monotony of arrangement.

An analysis of the various arrangements of the functions in these concepts, shows that the net - pattern conforms most to the structure diagram proposed. This pattern is particularly applied to the medical unit whereas in the rehabilitation and the accommodations units, some manupulations are made to achieve a desired functional layout.

9.2.0. Site planning

A low - compact planning approach is

applied in the overall site planning allowing for natural h lighting and ventilation to be achieved. This is intended to minimize the effect of the harsh tropical climate on the comfort of the users. The buildings are arranged on same horizontal plane and round courtyards. The arrangement, as opposed to the "Vertical Block stacking" offers a good functional inter-connection between all functions in the building, and saves the disabled people the problems they would have encountered in using staircases and elevators. Besides the issue of mechanical lighting and ventilation is completely eliminated.

The whole site is planned with three big courtyards. One is the general purpose courtyards. and forms the nucleus of the whole site around which all other buildings radiate. It is situated in the centre of the three main units, and serves as a transition zone from one unit to another. It is well landscaped for recreational purposes. The second courtyard falls in between the rehabilitation and medical units and is called the working courtyard. The third courtyard is situated inbetween the medical and accommodation units. Whereas, the other two are purely recreational, this courtyard serves as an

extension to the exercise room of the physiotherapy department in which case it can be utilized for outdoor therapy and recreation.

A single road leads into the site from the main road and terminate at the main entrance to the medical building and then branches to the visitors and staff parking. The service route leading to the Rehabilitation and services areas as well as the accommodation unit is tapped from the road just a few metres from the main gate, and together with the main access form a semi-circular road network pattern.

Three basic and distinct parking provisions are provided in the centre. The first is the medical section parking which is divided into staff, visitors and the handicapped parkings. The second is provided at the accommodation area meant for delivering rehabilitees and serving visitors to the area. The third parking provision is at the rehabilitation unit meant to serve visitors to the exhibition and sales area of the unit. One service bay is provided inbetween the general store and the kitchen areas.

Circulation within the complex is designed purely as pedestrian considering the nature

of the users. No thoroughfares are provided in order not to obstruct the movement of the wheel-chair users and those propping on sticks and crutches; all vehicular circulation is placed at the periphery. A clear separation is made right from the gate between the pedestrian and vehicular traffics. The pedestrian route is planned to run along side the vehicular route leading to the main entrance of the medical unit too. Major walkways and passages are paved, ramped and covered and have width of 3.00 metres, wide enough to allow two wheelchairs and two ambulant disabled to pass each other comfortably.

Considering the climate of the area, the buildings are oriented with their long axis on the south - east and north west axis thereby exposing most of the surfaces to the north-east and south-west directions.

Drainage pattern is a reflection of the site character following the direction of the slope that runs in the north-west and south-east direction. A main drain line collects all the exhants from the units to a swampy area further down the site.



From data obtained, the Author finds that the units or areas prone to expansion are the accommodation and the workshops. Expansion to the workshops can take place along the tree ends of the workshop buildings. The accommodation units are planned to expand in the south-east direction.

9.3.0 Design

When the purpose of a design is the rehabilitation of the physically disabled, then the limited mobility of the people intended must be borne in mind. With limited mobility, the wheelchair then becomes the basic module or unit of design, hence its standard dimension, and the dimension of its path of actions form the design standards. Throughout this thesis, the design (space allocation) is based on the requirements of the wheelchair user unless otherwise superseded by the requirements of the ambulant disabled.

9.5.1. Medical Section

Organization

The medical section is designed as a complex of functionally interrelated units (the therapies and social adjustment) and integrated with the administration department. The building has two main entrances (the O.P.D. and staff entrances) and arranged round five big courtyards of varying sizes. Two main parallel corridors running across the building form the main circulation route within. The largest of the two commences from the main entrance (the O.P.D. entrance) and [illegible] into the general purpose courtyard. The corridor is the major link from the importance to the departments. Because of this it is placed about the main corridor which gives it the advantage of almost equal access by both in - and out - patients and from all departments. It is placed near the diagnosis unit for effective coordination and adjacent to the occupational therapy department. An access is provided linking these two therapies together so that scheduled patients can move from one department to another without having to go all [illegible]

traffic. The department takes advantage of some certain out-door activities, thus the exercise area is placed near the out doors.

Space organization

The department is divided into two areas; wet and dry according to the type of treatment given. The dry area includes the exercise area and treatment cubicles while the wet area forms the hydrotherapy unit. The physical therapy unit is further divided into three sections; the consultation suites (mostly offices) treatment cubicles and the exercise area. The entrance to these three sections is provided at the consultation section for effective supervision. To conform to the various treatment and exercise requirements of patients the cubicles and the exercise are hance high degree of flexibility obtained with the use of demountable partitions or curtain railings in some cases. Doors leading to the exercise are wide enough with double leaf each 0.9 metres.

The hydrotherapy section has another separate entrance to allow the use of the pool when the main entrance is closed. Adequate changing rooms are provided for both staff

and patients. Storage for wheel chairs and other unused equipments is provided. Because of high the unit to the other units of the centre and within the building, serves as the distributor from where all routes leading to the departments are tapped. The second corridor commences from the staff entrance and terminates at the social adjustment deaprtment. The two corridors divide the building into three segments; the right hand segment comprising the administration and the social Adjustment departments; the middle segment containing the diagnosisi and related services; the left-hand segment comprising the therapeutic departments.

9.3.2. Orthetic and Prosthetic shop

Location

The department is placed oppiste the diagnosis unit for easy movement of patients. Similarly, it is not taken far away from the physical therapy department so that patients can utilize the exercise area to practice or try their appliances. Since the shop attracts a reasonable number of out-patients it is located with direct access from the entrance zone.

Space organization

The department is under one roof and equipped with shop and fitting spaces. An exercise area is provided within where the patients can try their prosthesis and braces ceiling height is kept considerably high for such purpsoe.

9.3.3. The therapy

Location

The location of this department within the building is too crucial because of its relative humidity in the room. Ceiling height is at 3.50 metres above floor level which as well allows the overhead monorails with lifting aids for transfering the patients in and out of the pools to be installed. Gullies are provided on the floor to drain overflow water from the pools. The floor is furnished with unglazed ceramic tiles and especially constructed [illegible] with the excess stresses of the live load on it.

9.3.4. Rehabilitation Section

The section is planned as a single attached building. Because of high level of noise in the

section, it is not placed on the NE - SW axis. To facilitate the delivery and shipment of materials, the section is placed along the service route and adjacent to the loading bay. The section has two main parts; the workshops and offices and classes. These two parts are linked by corridors, that go round three main courtyards. These are basically three entrances; one leading to the workshops side, another leading to the exhibitionside and the third takes one to the offices area.

Space Organization

As the area resembles closely the industrial spaces, the workshops have steel frame structures with clear unobstructed spaces to allow for changes in the requirements of training offered. Floors are adequately designed to carry machine loads. Ceiling levels are high which ensures adequate ventilation and lighting to be achieved.

A central store is placed in-between the two workshops and opens to the loading bay and truck service dock. Common changing room and first-aid room are provided. To ensure adequate supervision, the offices for the vocational staff are placed opposite the workshops.

9.3.5. Accommodation section

The section is placed on the quietest axis but readily accessible and linked to the services and medical units by covered walkways. For recreation purposes, the section opens up to the centres main recreation courtyard.

Space organization

The planning of this area is based on the idea of forming a "family" kind of living pattern. A hierachy of space is achieved in terms of courtyard planning from a much larger multipurpose to a smaller courtyard within each wing. A unit contains two wings each consisting of twenty five rehabilitees two per room. Two matrons and care-takers rooms are provided per wing with toilet facilities comprising of Bath, shower and WC, to satisfy the various needs of the disabled, at each corner of a wing. A central entrance via the common room distributes traffic to the two wings.

9.4.0. Structure, finishes and materials

The traditional beam and post structure is used throughout the centre except for areas like the workshops, exercise area, the hydrotherapy and dining/kitchen.

The exercise area of the physio therapy department has a steel trussed structure to give the clear, unobstructed space needed for the various activities taking place within it. The use of open partitions allows attachment of equipment yet low-enough to allow vision and ventilation. The floor is made of timber to minimize hazard due to falling. Filling walls are reinforced to carry the weight of the equipments hanged on them and covered with vinyl matt to a height of 1.50 metre to protect the wall against damage by wheel chairs.

The walls are all made of sandcrete blocks finished with sand cement plast except otherwise stated.

CONCLUSION

The problems that the disabled people face in our society is solely attributed to the way people and governments, alike, treat this neglected minority by denying them the avenues through which they can opt in and participate in the busy life of the world as their able-bodied counterparts. The few rehabilitation centres provided in the country centres their attention to the aspect of vocational training only and no more. It is the Author's view that these people need not only vocational training but also a normalization of their physical disabilities, hence the need for setting up COMPREHENCSIVE REHABILITATION CENTRES I in our societies.

The thesis, thus, could be seen as an instance of reflecting an issue of social concern into architectural planning. And it is also hoped that the physically disabled (once neglected in the society) having pased through the centre would become a productive member not only to himself but to the community alike.

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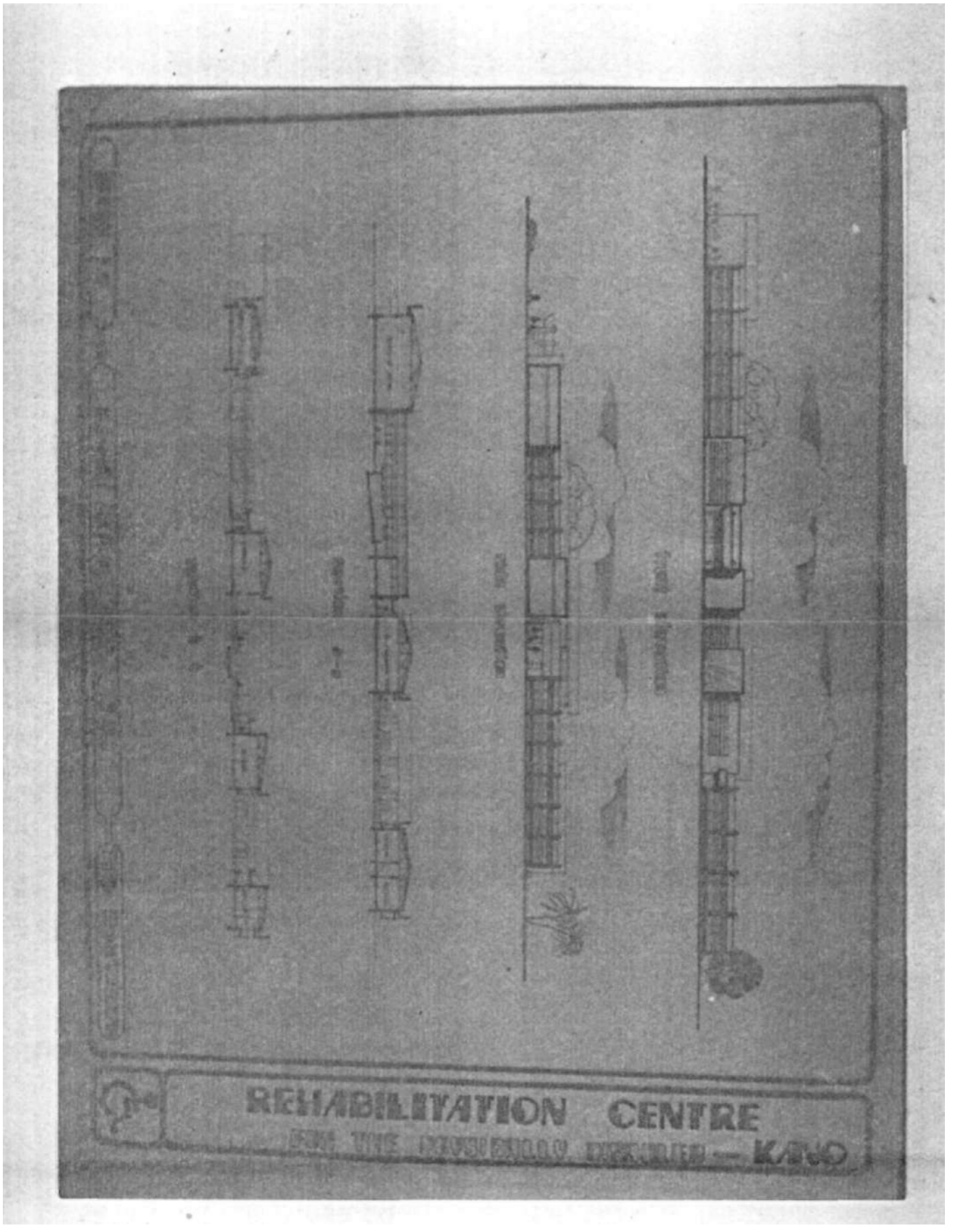
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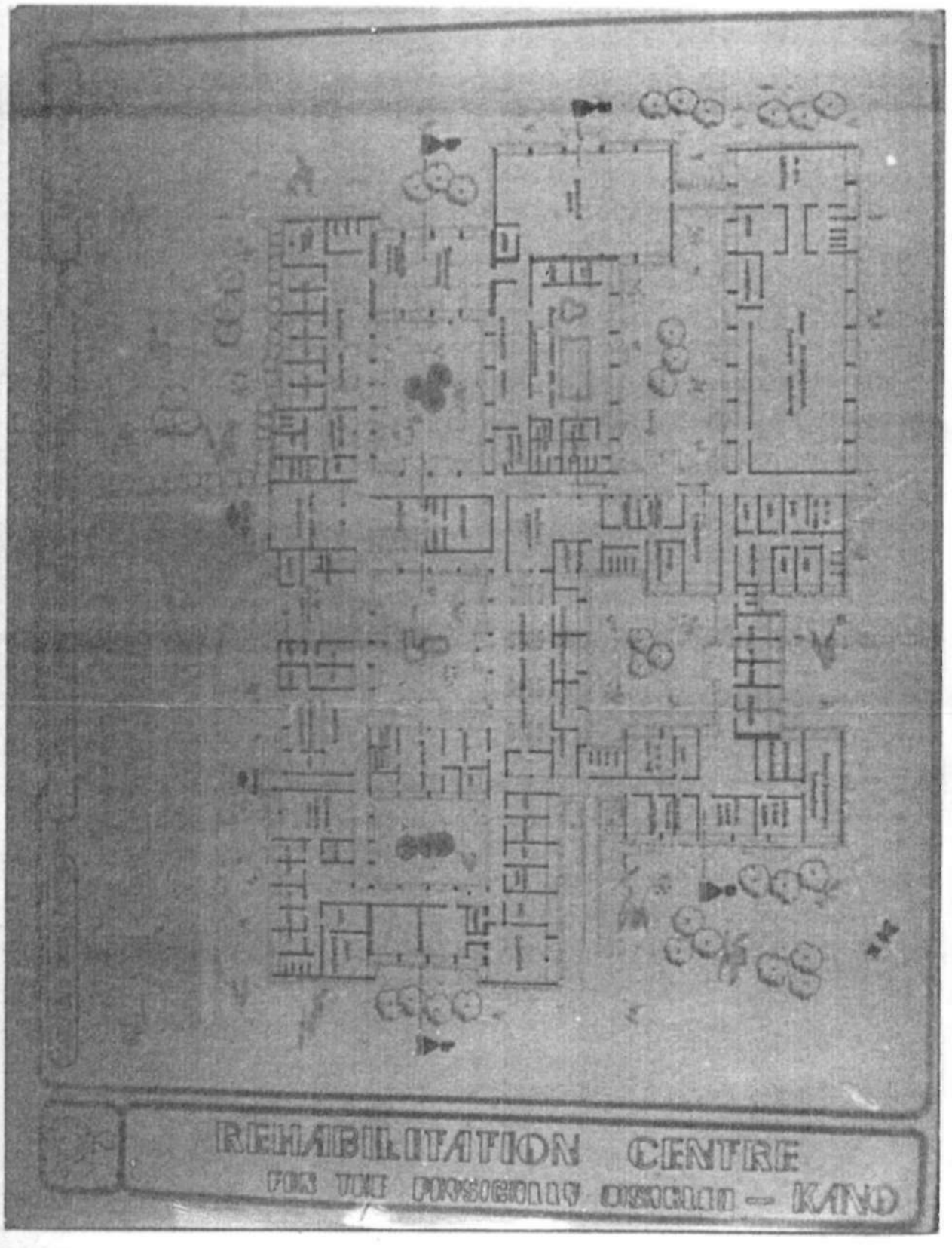
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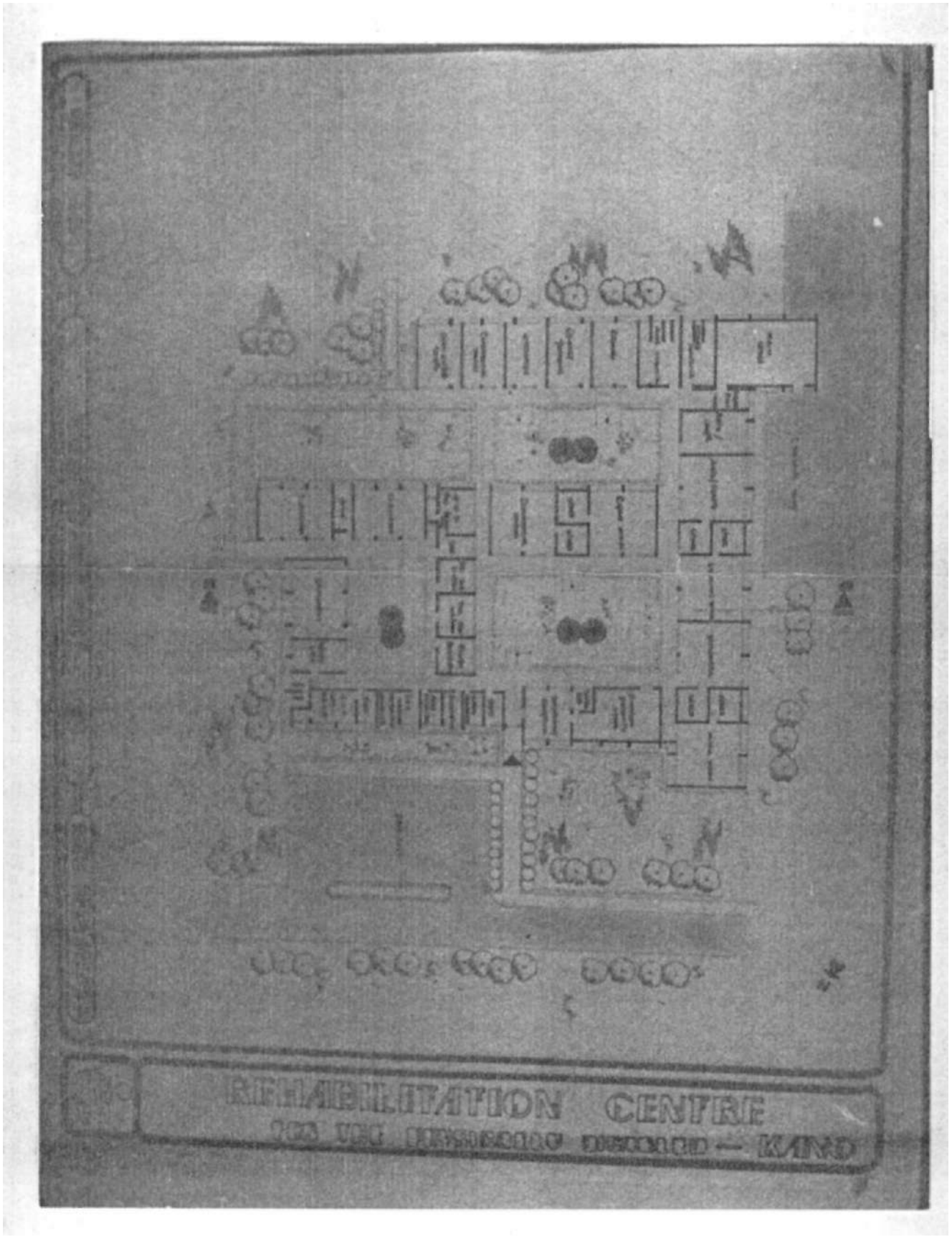
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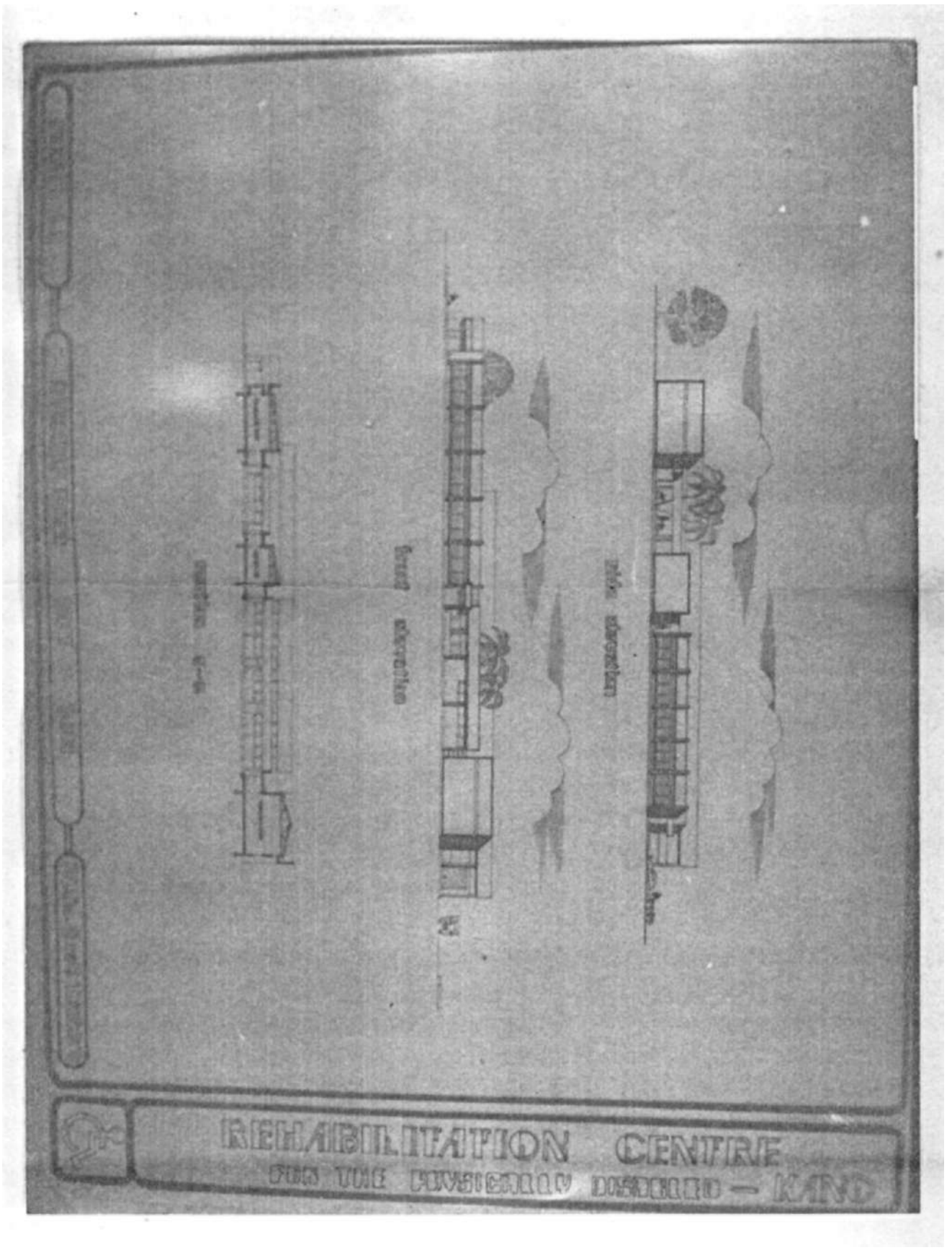
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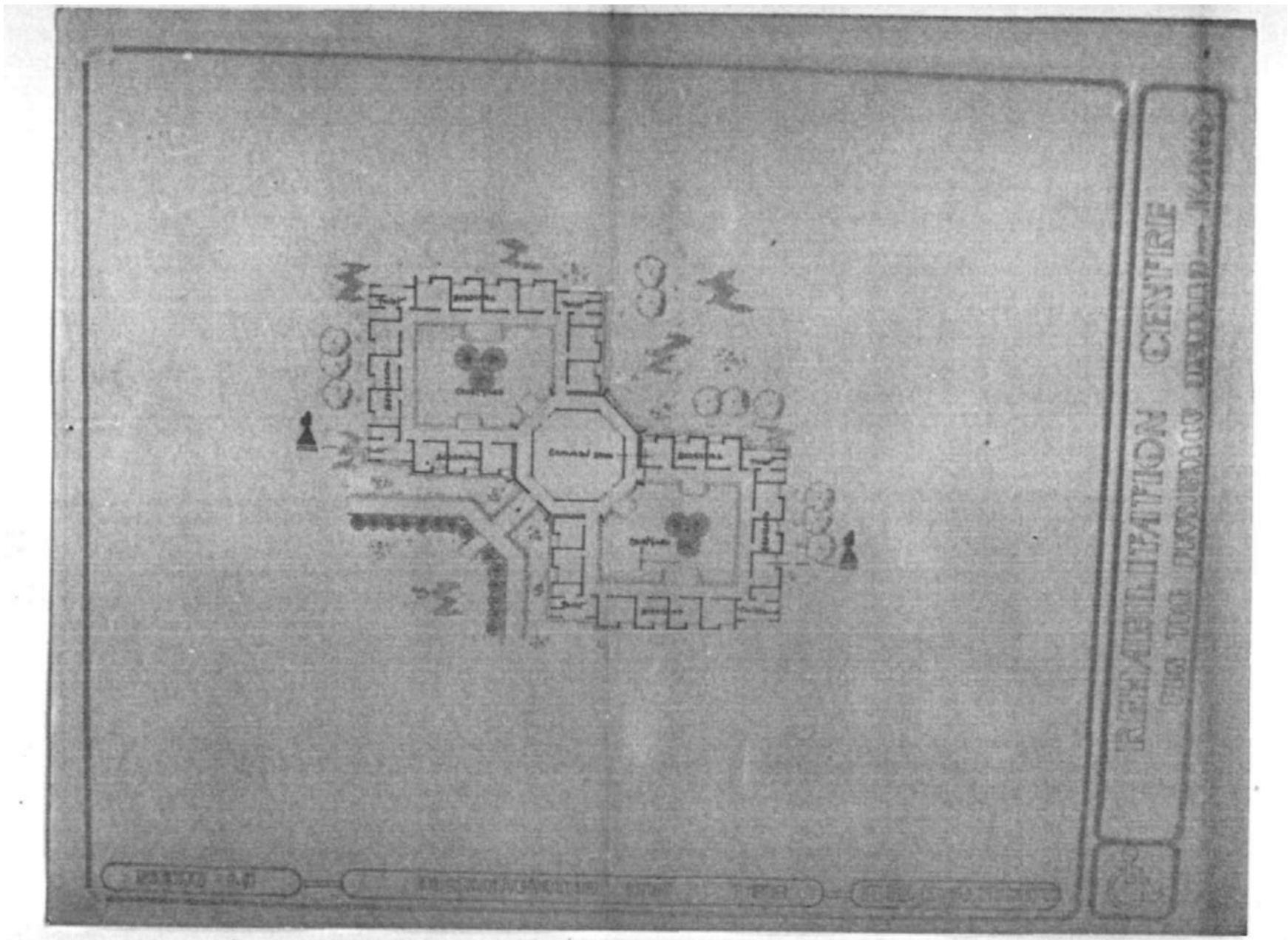
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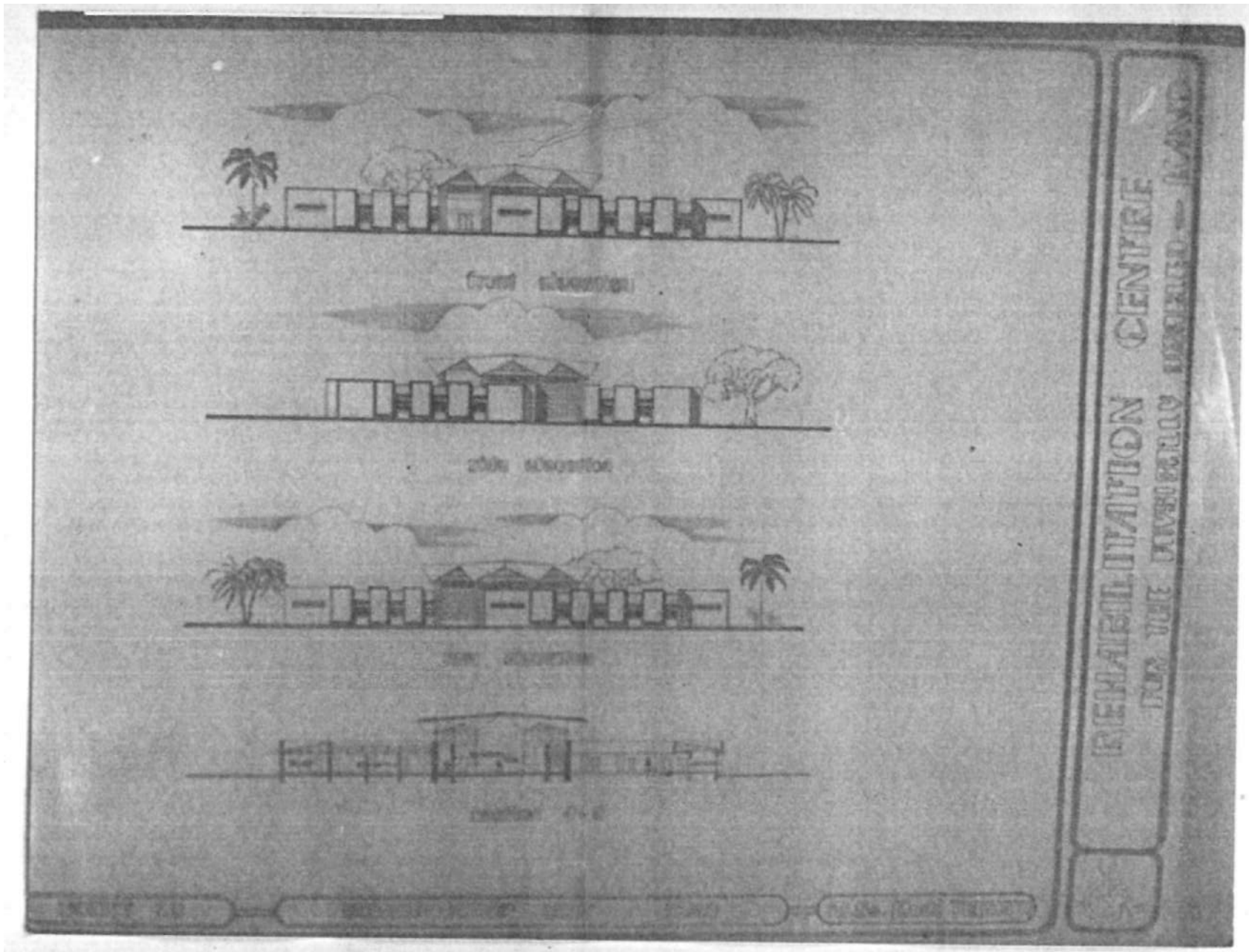

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