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"MODEL VETERINARY HOSPITAL JOS

"A THESIS SUBMITTED TO THE DEPARTMENT OF

ARCHITECTURE

FACULTY OF ENVIRONMENTAL DESIGN

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BY

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D E D I C A T I O N

This piece of work is dedicated to

My Dearest Father, Mr. R.A.O. Shonkan M.O.H.

Sc. M. (Hopkins) who has always been my Tower of Strength and source of Inspiration for his relentless efforts in directing me towards the path of light Physically, Spiritually and Morally. Also for his renowned contributory work to the field of Veterinary Parasitology in Nigeria particularly at Vom.

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Finally may I express my heartfelt gratitude to all who have contributed to the success of this piece of work.

SOMORIN AFOLABI OLAWANDE SHONEKAN. B.Sc (Arch).

## ABSTRACT

This Thesis employs the use of a particular model of Architectural Design Methodology in tackling the Design of a model Veterinay Hospital.

The model used is the Fourth Model (Model 4) of problem solving and problem Defination. This model of Architecture assumes explicit uncertainty in the problem-solving phase about the knowledge of the appropriate value to be attached to the expected consequences and about knowledge of oppropriate planning instrument. Also, explicit uncertainty in assumed in executing tho description of the casual texture of the environment.

The possession of extensive knowledge about building components by an architect does not mean he has a good understanding; of how people would interact with the designed Environment. My thesis is an attempt to prove that in designing a building as an architect one must not neglect the social Engineering aspect of the Design. Thus, I have used that Linkage between social Architecture and Physical architecture to design a Veterinary Hospital. Through-out the process of Design, I have asked Why? How: and What? I am a model for Architect. -A social and physical architect.

C O N T E N T S

	<u>P a g e</u>
Dedication	(ii)
Acknowledgement	(iii)
Abstract	(iv)
Introduction	(v)
1. Social Architecture	3
1.1 Intuitive Architecture	3
1.2 Application of Herschebergers Semantic Differential Scale	3
1.3 Environments Investigated	5
2. Physical Architecture	20
2.1 Types of Construction	20
2.2 Servant and served spaces	23
2.3 Shared Facilities	24
3. Initial Thoughts on animal Hospital Design.	26
3.1 Case Load	28
3.2 Planning Standards	28
3.3 Zoning and Spatial relationships	30
3.4 Site selection criteria	31
4. The small Animal Unit	34
4.1 Reception and Records	34
4.2 Examination and consultancy	35
4.3 Laboratory and Pharmacy	36
4.4 Radiographic Unit	37
4.5 Surgical Unit	38

	P a g e
5. Large Animal Unit	40
5.1 Treatment and Consultancy	40
5.2 Surgical Theatre	41
5.3 Equipments	41
5.4 Hospitalization wards	42
6. Clinical Laboratories	43
6.1 Planning Principles	43
6.2 Utilities	43
6.3 Floors and Electrical needs	45
7. Necropsy Unit	46
7.1 Carcass Reception	47
7.2 Cold Room	47
7.3 Necropsy Area	47
7.4 Supporting Facilities	47
8. Other Facilities	48
8.1 Administration	49
8.2 Library	49
8.3 Staff Facilities	49
9. Waste Disposal and Sanitation	50
9.1 Types of Waste	50
9.2 Liquid Waste	50
9.3 Solid Waste	51
9.4 Animal Carcasses	51
9.5 Types of Incinerators	51
10. Concepts	52

	Page.
10.1 Building	52
10.2 Structure	52
10.3 Function	53
10.4 Site	53
11. The Design	54
11.1 Site Selection	54
11.2 The Plan	54
11.3 The Structure	56
11.4 Floor Finishes	56
12. Schedule of Accomodation	57

I N T R O D U C T I O N

**MOTIVATION:-** Having been born and nurtured in the hub and brain of the Nations' Veterinary activities and having grown up with a sympathy for the plight of Animals, it's no surprise that the idea of a Veterinary Hospital could crystallize into a project for my Master's Thesis.

**SIGNIFICANCE:-** I have proceeded to design a hospital that will have a number unique features with the aim of meeting the evergrowing and increasing needs and interest of all Nigerians in keeping Domestic animals.

With the operation of the National National drive, considerable interest is being generated for breeding poultry, piggery, rabbitry and Guinea Pigs.

With the emphatic declaration during the inauguration of the 1st Executive President of Nigeria His Excellency, Shehu Aliyu Shagari, proclaiming the determination of his government to execute an Agrarian revolution, it will necessitate our planning ahead to meet greatly increasing needs.

With the establishment of ranches, all over the country, the creation of a Veterinary Hospital to cater for the sick cattle, pigs, etc is imperative.

The sentimental and emotional attachment man  
right from the creation has had for the dog and cat  
(which are companion animals) is growing stronger and  
the lack of care for these companion animals would  
create a hollow in Man's life.

Veterinary Medicine is the scapegoat of  
human medicine; it's the experimenting stage of human  
medicine.

OBJECTIVE:- It is <sup>therefore</sup> my intention to prepare an  
architectural contribution to Tropical Veterinary  
Medicine in terms of space requirements facilities  
and structures, to meet the challenging demands  
of Tropical Veterinary Medicine.

SOCIAL ARCHITECTURE

## 1.1 INTUITIVE ARCHITECTURE

Many architects design buildings for their stakeholders without considering the response of the stakeholder to the proposed design.

In my research on the social Architecture of Veterinary Hospitals. I have proceeded to find out whether I can assume the same intuitive role as my stakeholder (my stakeholders refer to my Users i.e. the veterinary Doctors and the Animals.)

I have used as my reference, Herscheberger's semantic differential scale which has a series metaphors on one side of the scale describing the casual texture of the environment and on the other side oppositely termed metaphors to the former. (Refer Table).

## 1.2 APPLICATION OF HERSCHEBERGER'S

SEMANTIC  
DIFFERENTIAL  
SCALE

In using the scale, I have proceeded to investigate existing environments., in some Veterinary Hospitals. I have chosen four variables for my purpose.

The present environment of the Animals	O
The present environment of the Doctors	O
The Desired environment of the Animals	Z
The Desired environment of the Doctor	X

(4)

Architect's prediction of User's response P.  
My predictions of the user's response to  
the investigated environments was also drawn  
up. I have then proceeded to select the  
dominant factors in which I consider are  
necessary in the design of the veterinary  
Hospital. The Standard disparity between  
the Architects prediction of the users'  
response and the User's response was drawn  
up (see table ).

On the basis of this, I discovered that I  
could assume the same intuitive role as the  
user because of the disparity between my  
prediction as the Architect and the User's  
prediction is small. These Dominant  
metaphors have influenced the  
of the design.

The Environments investigated are described below:-

**THE NATIONAL VETERINARY RESEARCH INSTITUTE VOM:-**

This is the foremost veterinary centre in the country. Established in 1924, it was chosen for the production of biologicals, prophylactics etc used to prevent animals from major episodic diseases. It was also the original centre for breeding exotic/Nigerian Crosses of horses, pigs and cattle. As the title indicates, Vom is mainly a research centre however, it sports a Veterinary clinic. (Fig ). This clinic provides for both small and large animals. The building was converted from its former use to a clinic. The clinic has an adequate circulation and zoning pattern. However, the following are not possible.

1. Lack of proper operation facilities for large animals as this has to be done in the open courtyard.
2. Sanitation of the place is not well done.

**THE KADUNA VETERINARY CLINIC:**

This is a small building which provides general health services i.e. treatment of minor cases and control of livestock diseases. The clinic operates cases of minor treatments of small animals like cats and dogs. Occasionally some large animals like horses and donkeys are taken care of.

Its disadvantages are:-

1. Its location: It is located in town where there is heavy traffic and it is not screened from the surrounding residential buildings.
2. Surgery and treatment are done in the same room:  
THE AHMADU BELLO UNIVERSITY, FACULTY OF  
VETERINARY MEDICINE: This is mainly a teaching facility. However, it operates an Out patient Department comprising of Large Animal Units and Small Animal Units. The X-Ray Unit and Pharmacy are more towards the large Animal Unit which means to X-Ray a small Animal it has to be moved over a distance of about 30 metres.
3. The location of the Necropsy Unit is too close to the other parts of the complex.

#### OTHER CASE STUDIES

##### LEPPER ANIMAL HOSPITAL:

This hospital has an excellent zoning and circulation pattern and the floor plan was conceived and executed with the bold attempt to combine an effective teaching facility with an adequate animal treatment facility.

##### THE FOLLOWING ARE ITS DISADVANTAGES:

1. The circulation pattern is faulty. The distance from the small animal treatment room to the theatre is too much.
2. The location of shared facilities between the

small Animal Unit and the large Animal Unit is at fault. i.e. The X-Ray Unit, The compact of the patient in mind. It is a marvel of convenience and an excellent use of space.

(Fig      ).

THE JENSEN ANIMAL HOSPITAL: It is located in a rapidly developing suburb of Cleveland Ohio. It has accommodation for 125 animals. In order to be permitted to build in the suburb, building authorities insisted that the nuisance factor of barking Dogs be controlled. This meant building inside Runs and sound proofing the building. Light is admitted through glass blocks

SEMANTIC SCALE BY HERSHENBERGER ET AL.

	2	3	4	5	6	7	8	
Cozy	-	-	-	-	-	-	-	Roomy
Common	-	-	-	-	-	-	-	Unique
Clean	-	-	-	-	-	-	-	Dirty
Light	-	-	-	-	-	-	-	Dark
Useful	-	-	-	-	-	-	-	Useless
Delicate	-	-	-	-	-	-	-	Rugged
Active	-	-	-	-	-	-	-	Passive
Good	-	-	-	-	-	-	-	Bad
Ordered	-	-	-	-	-	-	-	Chaotic
Cool	-	-	-	-	-	-	-	Warm
Old	-	-	-	-	-	-	-	New
Colorless	-	-	-	-	-	-	-	Colorful
Stuffy	-	-	-	-	-	-	-	Drafty
Flexible	-	-	-	-	-	-	-	Rigid
Expensive	-	-	-	-	-	-	-	Inexpensive
Calming	-	-	-	-	-	-	-	Exciting
Clear	-	-	-	-	-	-	-	Ambiguous
Quiet	-	-	-	-	-	-	-	Noisy
Safe	-	-	-	-	-	-	-	Dangerous
Small	-	-	-	-	-	-	-	Large
Hot	-	-	-	-	-	-	-	Cold
Simple	-	-	-	-	-	-	-	Complex
Pleasing	-	-	-	-	-	-	-	Annoying
Smooth	-	-	-	-	-	-	-	Rough

(9)

	2	3	4	5	6	7	8	
Formal	-	-	-	-	-	-	-	Casual
Dull	-	-	-	-	-	-	-	Bright
Friendly	-	-	-	-	-	-	-	Hostile
Messy	-	-	-	-	-	-	-	Tidy
Private	-	-	-	-	-	-	-	Public
Boring	-	-	-	-	-	-	-	Interesting
Traditional	-	-	-	-	-	-	-	Contemporary
Generous	-	-	-	-	-	-	-	Frugal
Huge	-	-	-	-	-	-	-	Tiny
Beautiful	-	-	-	-	-	-	-	Ugly
Unified	-	-	-	-	-	-	-	Diversified
Subdued	-	-	-	-	-	-	-	Protected
Facilitating	-	-	-	-	-	-	-	Distracting
Kusty	-	-	-	-	-	-	-	Fresh
Temporary	-	-	-	-	-	-	-	Permanent

TABLE 1.1

	2	3	4	5	6	7	8	
Hot	-	-	-	-	-	-	-	Cold
Simple	-	-	-	-	-	-	-	Complex
Pleasant	-	-	-	-	-	-	-	Annoying
Smooth	-	-	-	-	-	-	-	Rough
Formal	-	-	-	-	-	-	-	Casual
Dull	-	-	-	-	-	-	-	Bright
Friendly	-	-	-	-	-	-	-	Hostile
Messy	-	-	-	-	-	-	-	Tidy
Private	-	-	-	-	-	-	-	Public
Boring	-	-	-	-	-	-	-	Interesting
Traditional	-	-	-	-	-	-	-	Contemporary
Generous	-	-	-	-	-	-	-	Frugal
Huge	-	-	-	-	-	-	-	Tiny
Beautiful	-	-	-	-	-	-	-	Ugly
Unified	-	-	-	-	-	-	-	Diversified
Subdued	-	-	-	-	-	-	-	Protected
Facilitating	-	-	-	-	-	-	-	Distracting
Musty	-	-	-	-	-	-	-	Fresh
Temporary	-	-	-	-	-	-	-	Permanent

TABLE 1.2

SEMANTIC SCALE SHOWING STANDARD  
DEVIATION BETWEEN 0 AND X

	2	3	4	5	6	7	8	
Cozy	-	-	-	-	-	-	-	Roony
Common	-	-	-	-	-	-	-	Unique
Clean	-	-	-	-	-	-	-	Dirty
Light	-	-	-	-	-	-	-	Dark
Useful	-	-	-	-	-	-	-	Useless
Delicate	-	-	-	-	-	-	-	Rugged
Active	-	-	-	-	-	-	-	Passive
Good	-	-	-	-	-	-	-	Bad
Ordered	-	-	-	-	-	-	-	Chaotic
Cool	-	-	-	-	-	-	-	Warm
Old	-	-	-	-	-	-	-	New
Colorless	-	-	-	-	-	-	-	Colorful
Stuffy	-	-	-	-	-	-	-	Drafty
Flexible	-	-	-	-	-	-	-	Rigid
Expensive	-	-	-	-	-	-	-	Inexpensive
Calming	-	-	-	-	-	-	-	Exciting
Clear	-	-	-	-	-	-	-	Ambiguous
Quiet	-	-	-	-	-	-	-	Noisy
Safe	-	-	-	-	-	-	-	Dangerous
Small	"	-	-	-	-	-	-	Large

	2	3	4	5	6	7	8	
Hot	-	-	-	-	-	-	-	Cold
Simple	-	-	-	-	-	-	-	Complex
Pleasing	-	-	-	-	-	-	-	Annoying
Smooth	-	-	-	-	-	-	-	Rough
Formal	-	-	-	-	-	-	-	Casual
Dull	-	-	-	-	-	-	-	Bright
Friendly	-	-	-	-	-	-	-	Hostile
Messy	-	-	-	-	-	-	-	Tidy
Private	-	-	-	-	-	-	-	Public
Boring	-	-	-	-	-	-	-	Interesting
Traditional	-	-	-	-	-	-	-	Contemporary
Generous	-	-	-	-	-	-	-	Frugal
Huge	-	-	-	-	-	-	-	Tiny
Beautiful	-	-	-	-	-	-	-	Ugly
Unified	-	-	-	-	-	-	-	Diversified
Subdued	-	-	-	-	-	-	-	Protected
Facilitating	-	-	-	-	-	-	-	Distracting
Musty	-	-	-	-	-	-	-	Fresh
Temporary	-	-	-	-	-	-	-	Permanent

TABLE 1.3

SEMANTIC DIFFERENTIAL SCALESHOWING STANDARD DISPARITYBETWEEN P AND Z

	2	3	4	5	6	7	8	
Cozy	-	-	-	-	-	-	-	Roomy
Clean	-	-	-	-	-	-	-	Dirty
Light	-	-	-	-	-	-	-	Dark
Useful	-	-	-	-	-	-	-	Useless
Delicate	-	-	-	-	-	-	-	Rugged
Good	-	-	-	-	-	-	-	Bad
Ordered	-	-	-	-	-	-	-	Chaotic
Cool	-	-	-	-	-	-	-	Warm
Old	-	-	-	-	-	-	-	New
Colorless	-	-	-	-	-	-	-	Colorful
Flexible	-	-	-	-	-	-	-	Rigid
Expensive	-	-	-	-	-	-	-	Inexpensive
Calm	-	-	-	-	-	-	-	Exciting
Quiet	-	-	-	-	-	-	-	Noisy
Safe	-	-	-	-	-	-	-	Dangerous
Small	-	-	-	-	-	-	-	Large
Hot	-	-	-	-	-	-	-	Cold
Simple	-	-	-	-	-	-	-	Complex
Smooth	-	-	-	-	-	-	-	Rough
Dull	-	-	-	-	-	-	-	Bright

	2	3	4	5	6	7	8	
Friendly	-	-	-	-	-	-	-	Hostile
Messy	-	-	-	-	-	-	-	Tidy
Private	-	-	-	-	-	-	-	Public
Boring	-	-	-	-	-	-	-	Interesting
Generous	-	-	-	-	-	-	-	Frugal
Huge	-	-	-	-	-	-	-	Tiny
Beautiful	-	-	-	-	-	-	-	Ugly
Unified	-	-	-	-	-	-	-	Diversified
Musty	-	-	-	-	-	-	-	Fresh
Temporary	-	-	-	-	-	-	-	Permanent

TABLE 1.4

	2	3	4	5	6	7	8	
Dull	-	-	-	-	-	-	-	Bright
Friendly	-	-	-	-	-	-	-	Hostile
Messy	-	-	-	-	-	-	-	Tidy
Private	-	-	-	-	-	-	-	Public
Boring	-	-	-	-	-	-	-	Interesting
Generous	-	-	-	-	-	-	-	Frugal
Huge	-	-	-	-	-	-	-	Tiny
Beautiful	-	-	-	-	-	-	-	Ugly
Unified	-	-	-	-	-	-	-	Diversified
Musty	-	-	-	-	-	-	-	Fresh
Temporary	-	-	-	-	-	-	-	Permanent

TABLE 1.5

I shall proceed to expatiate on each of them.

**MASS CONSTRUCTION:**

This consists of solid masonry blocks of stone, brickwork and concrete into which spaces appear to have been hollowed to accommodate various activities e.g. Pyramids, Frank Lloyd's Wrights, Television West and East.

Advantages:

1. Excellent for environmental control
2. Appropriate for buildings into many kinds of Historical Context.

Disadvantages:

1. It is unsuitable for bad ground
2. Uneconomical where activities are distributed in a regular pattern.
3. Totally Unflexible.

**FRAME CONSTRUCTION:** Using steel, steel and concrete to form a cage which only forms a supporting structure and needs cladding panels, partitions, floors and roofs usually as planar surfaces to make it habitable.

Advantages:

1. excellent for rooms disposed in a regular pattern and for irregular room shapes where partitions do not meet the frame.
2. Very Flexible.

Disadvantages:

1. Difficult Environmental control especially sound insulation.
2. Expensive
3. Unsuitable for building into Historical Context

SKIN CONSTRUCTION:

Self supporting timber, concrete, steel or reinforced plastic shells are form of Skin construction. Others are inflated or suspended plastic enclosures. Inflated versions are inherently consistent, but suspended versions need a steel concrete or timber frame for support. Shells may be used wherever large spaces have to be enclosed - often they take the form of circular domes, but apart from exhibition buildings, circuses and cinemas no real use has been found for inflatable suspended structures.

Advantages:

Possible for use on bad ground.

Disadvantages:

1. Only suitable for temporary purposes
2. Little environmental control (or Mechanical Security). The skin may be cut with a knife (in case of inflated structures).

PLANAR CONSTRUCTION:

Here solid masonry (using similar materials to mass construction) is built in relatively thin planar walls which support the building and supplemented by glazed or other screens, separate the internal spaces from each other and the inside from outside.

Advantages:

1. Excellent in the form of cross wall construction
2. Good for Environmental control
3. Cheap
4. Good for building into some historical context

SERVANT AND SERVED SPACES:

In any building, there are served spaces and servant spaces and there has to be a linkage between these two spaces. For example, in my Veterinary Hospital, the Foodstores, Feed Store, Kitchen Reception are examples of servant spaces. The diagram below shows an arrangement of servant and served spaces.

DESIGN

There are two steps taken by a working man that influence his existence: marriage and building and not necessarily in that order.

In the life of a Veterinarian, the building usually means utilization of an existing structure or the creation of a new facility. In either case, there are some problems, real or unreal. ZONING:-

Living within a society there is a law, be it an ordinance or edict. A zoning or planning board will probably affect the establishment of the veterinary Hospital in a particular area. With ecology becoming a political and sociological gestion, it is necessary to obtain direction regarding any specific site.

SITE CONDITION OR GEOLOGY: Subsurface conditions should be explored to uncover any condition that could influence water supply or sewage disposal. Selection of a property with city water and sewage is preferable.

DESIGN PACKAGE: Preliminary design studies should be a matter of dialogue. There should be a mutual search for a successful building between the architect and Client remembering that the Animal is interested only in recovery good care and home. The hospital should be unique and outstanding. There is no point in hiding the true function under the guise of blending in. A need for the study of use-Functions is necessary.

Some areas may be reduced in square footage while others may have to increase depending on use- and interior space designs.

**CONTROL OF ODORS.** Restraint and isolation of the patient should give study to the location and control of odors. The possibility of the use of a mechanical system for the removal of odors should be explored.

**CONTROL OF FLAME SPREAD:** Flame spread has become a consideration in the selection of interior finishes. This can be tackled by the use of masonry as bearing and non bearing partitions with paint finishes.

**FINISHES:** Flooring is going to be a problem as regards factors of aesthetics functionalism.

Possibilities of the use of Vinyl, Polyester or carpeting should be explored and weighed against their advantages and disadvantages, bearing in mind the factors considered above, always remembering that the Hospital is a tool and not the end in itself.

**SOUND TRANSMISSION:** The use of dropped acoustical ceiling tiles will effectively control the room in which they are used but they do not prevent sound transmission. Location of Noisy areas from quiet areas is possible.

STORAGE AREAS: Areas for storage are very important hence an operating policy will have to be set in motion to insure that material and supplies move from the receiving and general storage to small areas for dispensing in Specific Locations.

## 7. PLANNING.

### PLANNING A VETERINARY HOSPITAL.

The concept of building any type of facility as it concerns the Architect revolves around two main factors. Decision and Design. The decisions that will be elaborated on are the definition of the Program and the selection of the site.

#### 3.1 CASE LOADS:

The major determinant in the definition of the program is the Case Load. The case load gives an indication as to the size of the hospital with respect to the Number of animals expected to receive treatment in the Hospital which in turn depends on the number of Animals in the community. Animals can be categorized as either small or large. Each of these can be further broken down as follows:

##### Small Animals

Feline Species.

Canine Species.

LARGE ANIMALS

Bovine Species(Cattle etc)

Equine species(Horse, Donkey etc)

Porcine Species. (Pigs)

Table shows the population of Animals in and around Jos.

ANIMAL SPECIES	POPULATION
Ruminants	40,000
Felines	1,000
Carnines	3,000
Equines	8,000

### 3.2 PLANNING STANDARDS:

As earlier mentioned, the size of a Veterinary Hospital depends on the number of animals in the catchment area and the number of animals to be catered for in the Hospital. This can be further broken down as follows:-

- (a) Number of small animals in the catchment area.
- (b) Number of Large animals in the catchment area.
- (c) The frequency of animals treated that need nursing care and time they need hospitalization.

STANDARDS:

1. Small animals need 10 cages or kennels for every 1,000 - 1,500 small animals in the catchment area.
2. Large animals need 1 'cell' for every 1,000 - 1,500 animals in the catchment area.
3. Rabies infected dogs need at least 5 kennels for every 10,000 dogs in the community.

There is also need to provide surgery recovery, hospitalization and intensive care area.

CIRCULATION: Traffic movements is very important in a Veterinary Hospital Design. Any Passage involving crossing of paths should be avoided.

STANDARDS:

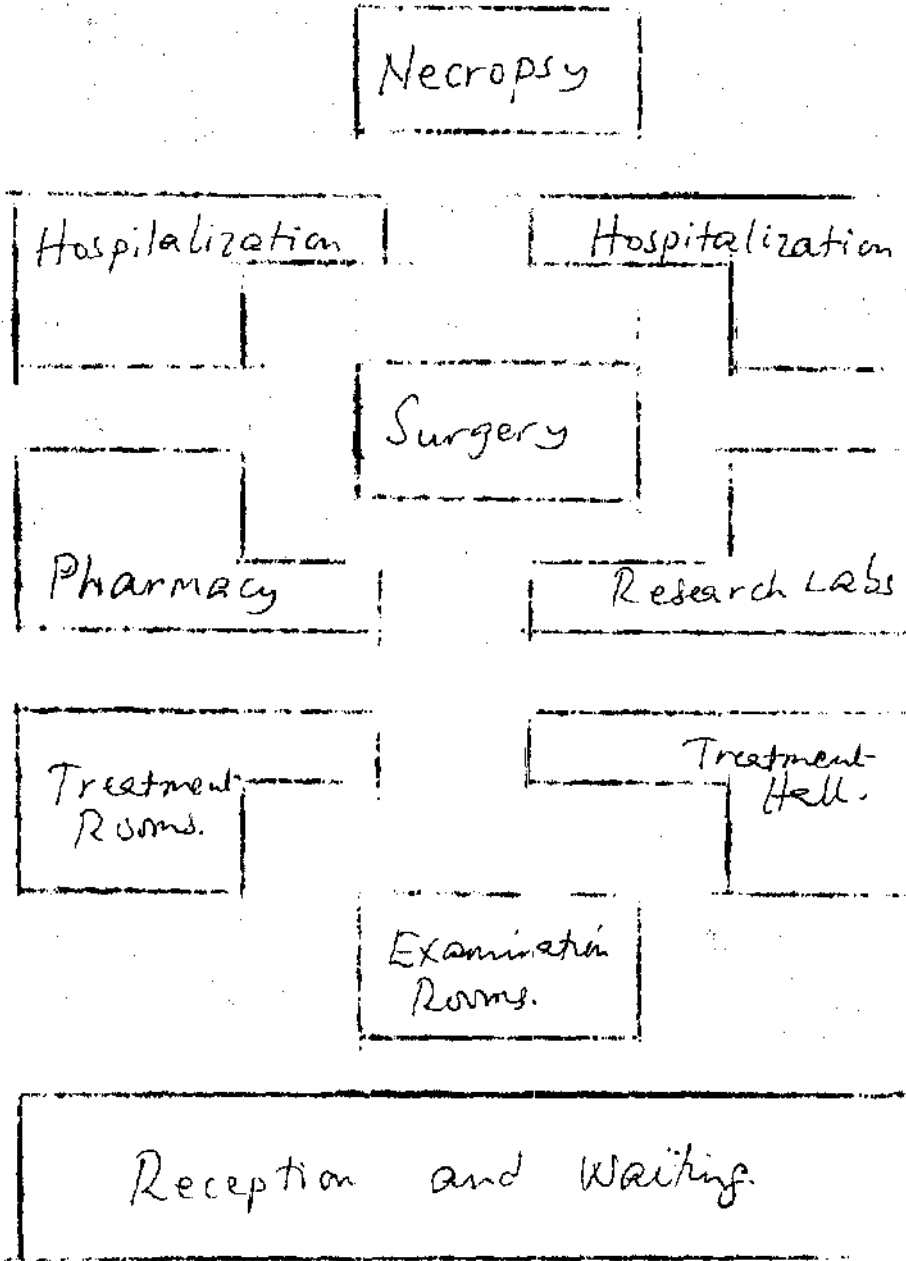
1. Small animals need 10 cages or kennels for every 1,000 - 1,500 small animals in the catchment area.
2. Large animals need 1 'coll' for every, 1,000 - 1,500 animals in the Catchment Area.
3. Rabies infected Dogs need at least 5 kennels for every 10,000 dogs in the community.

There is also need to provide surgery recovery, hospitalization and intensive care area.

CIRCULATION: Traffic movements is very important in a Veterinary Hospital Design.

Any Passage involving crossing of paths should be avoided.

ZONING & SPATIAL RELATIONSHIPS



POSSIBLE ZONING OF THE COMPLEX. Ground Floor

C H A P T E R   F O U R  
T H E   S M A L L   A N I M A L   U N I T

Basically, these Unit takes care of small Animals like Dogs, Cat etc. As mentioned earlier, there are some shared facilities between both the large animal unit and small animal unit. These facilities will be taken care of in this chapter.

4.1 RECEPTION AND RECORDS:

This is a shared facility and it should be as close as possible to the main entrance, area should be spacious and materials that are durable and handsome should be used. The reception is divided into three parts, the Feline section. The canine section and the large Animal section. I have separated the canine and Feline section because of the known hostile reactions between Dogs and Cats. Animals have a trait called Territoriality and to maintain the territoriality of these Animals I have designed the chairs in the reception such that the animal can comfortably sit on the ground, under the chair.

The reception counter is wood panalled to give a warm feeling of welcome and within the wood panelling, spaces are provided for small potted plants. The tiles used are a combination of green and white to match with the green color of the potted plants thus giving a natural - like environment. I have also included an animal drug display within the counter. The medical record normally contains:

- + Patient's identification
  - complaint given by the client
  - vaccination record
- + History
  - Physical examination findings
  - Provisional diagnosis etc.

## 2. EXAMINATION AND CONSULTANCY:

These rooms are found immediately after the reception. All other activities of the small Animal section revolve around the Examination rooms. It is the point which history taking, physical examination inoculation, minor therapy prophylaxis, ophthalmic examination takes place. Each examination room should contain a sink, a unit or top, examination table, cabinets space including

... feeling while listening to the client. This sort of induces some confidence of the Doctor's ability into the client. I have also colour-coded the drawers, so that each similar colour code represents ...

The laboratory is used for quick tests since Urine Analysis, Blood analysis etc.

#### 4.4 THE RADIOGRAPHIC UNIT:

This unit too is a shared facility and its location should be close to both small animal operating Theatre and the large animal operating theatre. I have used an instrument that excludes the need for a dark room. This is the "3n Highlight Program which utilizes special fluorescent light filters. They are a little dimmer than standard fluorescent illumination and have a slight reddish cast but it is a totally workable atmosphere. The system includes special "Highlight" film and an Automatic processor which is located in the same room.

When an X-Ray is to be taken, the door leading into the room is closed. The film is taken out, put into the cassette and then shot. The animal is anesthetized during Radiology. The patient is being monitored all the time, because it is not necessary to step into another room to change cassettes. The Automatic procession is a costly item but it can be justified.

First it results in a great many more X-Rays being taken, if it is going to take 5 minutes in the developer

SURGICAL THEATRE: The operating room should have the following characteristics:-

LOCATION: It should be near the preparation room and treatment rooms and out of heavy traffic. All personnel entering the operating room should be garbed in clean hospital clothes or sterile garments. The doors should be placed in a manner which could create drafts. Positive pressure of the atmosphere in the operating room would minimize the incidence of contamination from other rooms.

FLOOR: Impervious material with no seams and should be easily cleaned.

CEILING: Washable plaster or cement

DOORS: Well fitted, draft free and should be wide enough to permit a mobile table to enter and high enough to permit large equipment to pass. All electrical outlets should be at at least 1.5 m above floor level.

be at least 9m x 9m. This is because space is needed for horses and cattle pens. The room should have a floor finished with rough concrete and should be easily cleaned and disinfected. There should be easy contact between this room and the X-Ray room.

2 SURGICAL THEATRE:

This is where all major operations for large animals take place. The height and floor area of this room should be the same with the examination and Treatment room. (9 m x 9m x 6 m) min . Provision should be made for a recovery room. The room should be designed such that the operating trolley can move into it and fit conveniently. The walls and floor of this room should be finished with soft material. This is because when the animal recovers from Convalescence it becomes restless and without this finish it can injure itself.

3 EQUIPMENTS: Because of the weight and strength of some of these animals for example, the horse some special equipment are necessary in this large Animal Unit.

THE CRANE OR PULLEY: This is used to lift large animals for treatments like "Foot Rot". The Pulley is used for examination purposes too. At least

5. On headroom height is needed for the use of this equipment.

OPERATING TROLLEY: This is a flat table like and moveable equipment used for major surgical operations. The height of this equipment varies from 0.4m to 1.2m. The height is adjusted to 1.2 m when an operation is to be performed on the animal. After the operation it is adjusted to 0.4m so as to be able to fit into the Recovery Room.

TIMBER "PEG": This is a fine steel or timber made structure, used for restraining the animal. At least two of these 'pegs' should be available in the treatment and Examination room.

- 4 HOSPITALIZATION WARDS: This is a place where the animals are kept for nursing care. Each of these wards is designed with enough space to allow the animal feel free during the nursing care period. Each animal is allocated to a compartment to avoid possibilities of fight during this period. The floor of the compartment should be finished with rough concrete and should be easily cleaned and disinfected. The compartments should be at least 3.0m x 3.0m.

be considered. Space must be provided for

- (1) full Depth equipment (sinks, drain boards)
- (2) trunk half equipment (colorimeters cells counters)
- (3) back half equipment; (water baths incubators)
- (4) manual procedures.

COUNTERS:

Should provide adequate space for proper positioning of all major equipment. The counters should be as clear as possible and seldom used items can be kept in cabinet spaces over and under. The ideal counter height is about 7 - 10cm lower than the elbow. In General Planning, the stand up counter height should be about 1.0m and a 2m - 2.5m section should be sit down (70 cm to 90 cm) with knee space for microscope work. A 10cm toe space should be provided under all bottom cabinets. The counter depth should be at least 60cm. Anything more than the 60cm encourages the use of the back part of the counter for storage which makes it difficult to keep clean.

CABINETS: Solid cabinet doors are aesthetically preferred to glass doors or open shelves, since reagent cartons and bottles are so susceptible to staining and light can cause decomposition

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8.1 ADMINISTRATION: The day to day affairs of the hospital is managed by the Director of the Hospital who himself is a Veterinarian by profession. He is assisted by an Assistant Director. Other Staff involved in the Administration of the hospital include the following:

1. The Chief Executive Officer.
2. Executive Officers
3. Typists and Secretaries
4. Receptionists and Telephone Operatresses.

The Board Room is to be used for meetings of the governing council of the Hospital and also for conventions and conferences of veterinarians which use the hospital facilities.

8.2 THE LIBRARY: This is to be fully equipped with periodicals and books on the latest advances in the profession. The staff could make use of it to keep abreast of such advances.

8.3 STAFF FACILITIES:

THE STAFF REST ROOM: This room is to be used for short relaxation and as a forum for exchange of ideas between the Veterinarians. The staff rest room has a snack bar which could be taken advantage of by the Veterinarians, also.

C H A P T E R N I N E

9. WASTE DISPOSAL AND SANITATION

9.1 Basically, there are two types of wastes.

Liquid waste from the wash up of the Animal areas and drains. Solid waste which consists of the faeces of Animals, especially the large animals and the Carcass of animals from the Necropsy area. The small animals have what is called a RUN in the wards that is used to allow them ease themselves. Usually, the animal is brought out of the cage to allow the cage be cleaned. In the case of the large animals, the faeces is collected with the unwanted feed and taken to the manure pit. The compartment is washed and disinfected after the particular animal is discharged.

9.2 LIQUID WASTE:

In cases when wards are washed, it is recommended that the water should be drained treated and made harmless before it is allowed into the Environment. Hence, a water treatment area has been provided within the site.



9.3 SOLID WASTE:

MANURE PIT: This is a pit where all the faeces and unwanted feed is collected, turned manure and used as locally made fertiliser. The manure is collected when ready and distributed to farmlands on the outskirts of the town.

LABORATORIES AND TREATMENT ROOMS:

All the water and chemicals washed from this area is drained through pipes to the water treatment area. The sanitary Engineers would take care of the water treatment area in detail.

ANIMAL SMELL: This is taken care of by the rate of change of air in the area which is about

9.4 ANIMAL CARCASSES: These are disposed off by the use of an Incinerator.9.5 TYPES OF INCINERATORS:

There are three types of Incinerators.

FIRE WOOD INCINERATOR: Economical but the smoke could pollute the environment.

GAS INCINERATOR: Relatively economical and appreciable. No smoke pollution to the environment.

ELECTRIC INCINERATOR: Best but uneconomical.

I have decided to use the firewood incinerator due to the economics of its operation. Anybody entering the complex has to dip his feet in a small container of disinfectant in order to make sure that within the complex, of there some state of disinfection

C H A P T E R    T E N10. CONCEPTS10.1 BUILDING:

Despite the differences in functions and size of the various units comprising the Hospital, I have conceived the idea of unifying all my functions in a simple BUILDING. This emanates from my concept of "An External Appearance of unity to an internal complexity.

10.2 STRUCTURE: From my analysis on the physical Architecture, I have decided to employ the use of the Frame Structure. My internal Frame Structure is an obsolete one, in that it can be dismantled and arranged in any particular manner. Basically, it consists of a pair of U shaped precast columns 20cm x 20cm and panels 10cm thick. The columns have grooves to which the panels can be attached. My External envelope employs the use of Portal frames. These portal frames form the permanent structure. Now within the framework of the permanent structure (Portal frame) it is possible to dismantle the internal structure and produce other alternative plans. And that is why the plan is called an obsolescence plan. My use of the frame for the internal structure has the advantage of Flexibility and that gives

me a CONCEPT of multiple use of standard spaces.

- 10.3 FUNCTION: The floor plan conceived was divided into five zones namely: the Public Zones encompassing the Reception, Exam Rooms. The work zones has the laboratory pharmacy treatment area, animal surgery and radiology, ward zone covers the wards kennels and runs. The Post-Mortem Isolation zone. The large Animal zone and the administration zone.
- By Dividing the hospital into zone I was able to accomplish two major goals functionalism through client/patient flow and order/wise control.
- 10.4 SITE: On the site I was able to achieve separate entry points into the building for clients staff and supplies from one major entry point.

C H A P T E R    E L E V E N11.    THE DESIGN11.1    SITE SELECTION:

The site location is on the Jos Plateau approximately South of Jos city. The site is a vast expanse of flat undulating land on the old Airport Road.

There is a good road network linking other parts of the town with the site. Access to the site is from one main entrance, tapped off from the main road.

11.2    THE PLAN:

A smooth flow of traffic is achieved by zoning the plan into:

1. Public Zone - reception, Exam rooms  
Treatment Hall.
2. Work Zone - Laboratory, Pharmacy  
Treatment Area, Animal  
Surgery and Radiology
3. Ward Zone covers the wards, Kennels and Runs
4. Post Mortem-Isolation Zone consisting of  
the Necropsy and the Isolation Wards.
5. The large Animal Zone, covers the large Animal  
wards.
6. The Administration and staff facilities.

The plan shape is rectangular. The courtyard concept was adopted so as to allow free movement of air into the rooms and at the same time, let natural light penetrate the spaces. The plan is on two levels.

The ground floor houses all the Animal facilities while the First floor houses the Administrative and staff facilities. The first floor facilities are directly above the small animal facilities on the ground floor while the large Animal facilities are open through the first floor to the roof.

Some shared facilities like the Reception, X-Ray, Pharmacy and Necropsy are placed in between the large Animal and small animal sections.

- 11.3 STRUCTURE: The structure consists of basically permanent members and non-permanent members. The permanent members which consist of Portal Frames spanning 54m centres and a module of 6m centres form the enclosure of the whole building. The non-permanent members consist of Precast concrete columns and panels. The basic module of the column is 3.0m x 3.0m. These precast structure can be dismantled and arranged in any sensible manner within the frame work of the permanent structure.

11.4 FLOOR FINISHES:

The Reception and Entrance hall offices, exam rooms are finished with PUC tiles.

All corridors are to granolithic finish.

The laboratories are finished with carlon Brigantine. The large animal ward, large animal treatment areas and theatre should be of hard rough Concrete.

CHAPTER 12 (1)SCHEDULE OF ACCOMMODATIONRECEPTION AND WAITING

Room Designation	Number of Rooms	Size of Each Room	Total Area
Canine Waiting	1	36m	36m
Feline Waiting	1	36m	36m
Large Animal Waiting	1	36m	36m
Reception Counter	1	20m	20m
Toilets	1	9m	18m
TOTAL			146m

SMALL ANIMAL UNIT

Room Designation	Number of Rooms	Size of Each Room	Total Area
Examination Rooms	4	18m	7.2m
Treatment Room	1	36m	36m
Surgery Room	2	36m	7.2m
Doctor's Preparation Room	1	9m	9m
Wards	38	4.5m	17/m
Kitchen	11	18m	18m
Store	2	9m	18
Office	1	9m	9m
		TOTAL	405m

(59)

LARGE ANIMAL UNIT

Room Designation	Number of Rooms	Size of Each Room	Total Area
Treatment Hall	1	108m	108m
Operating Theatre	1	108m	108m
Animal Wards	19	9m	171m
Toilets	1	9m	9m
TOTAL			396m

SHARED FACILITIES

Room Designation	Number of Rooms	Size of Each room	Total Area
X-Ray Room	1	36m	36m
Pharmacy	1	36m	36m
Carcass Reception	1	9m	9m

/2..

Room Designation	Number of Rooms	Size of each room	Total Area
Cold Room	1	9m	9m
Necropsy Room	1	36m	36m
Microscope Room	1	18m	18m
Culture Laboratory	1	18m	18m
Chemical Pathology Laboratories	1	36m	36m
Parasitological Laboratories	1	36m	36m
Virology Laboratory	1	36m	36m
Toilets	1	18m	18m
TOTAL			288m

ADMINISTRATION

Room Designation	Number of Rooms	Size of Each room	Total Area
General Office	1	72m	72m
Director's Office	1	36m	36m
Deputy Director's Office	1	36	36
Secretary's Room	2	18m	36m
Chief Executive Officer	1	18m	18m
Board Room	11	54m	54m
Telephone Room	1	18m	18m
TOTAL			270m

STAFF FACILITIES

Room Designation	Number of Rooms	Size of Each room	Total Area
Library	1	54m	54m
Senior Staff Rest	1	18m	18m
Junior Staff Rest	1	18m	18m
Snack Bar	1	9m	9m
TOTAL:			99m

Grand total Area ----- 1604m

Add 20% of Area for circulation -- = 1,924.8m

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