A THESIS

Presented to the Department of Architecture Faculty of

Environmental Design

Ahmadu Bello University, Samaru - Zaria.

In partial fulfilment of the requirements for the Degree of Master of Science in Architecture.

By

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on

Hostel Accommodation for College of Agriculture, Samaru - Zaria.

in

June, 1981.

DEDICATION

This thesis is dedicated to my family and friends.

C O N T E N T S

(1). INTRODUCTION

(2). AGRICULTURAL TRAINING METHODS IN SOME WESTERN NATIONS AS WELL AS IN AFRICA.

(3). GENERAL INFORMATION ON HOSTEL DESIGN.

(4). REVIEW OF EXISTING HOSTEL DESIGN IN ZARIA.

(5). DESIGN ON NEW HOSTELS.

(6). BIBL[illegible]APHY.

A C K N O W L E D E G E M E N T S

I wish to express my since gratitude to the following for their assistance and co-operation given me during the difficult times of my thesis. I wish them God's blessing and guidance in their endeavours.

(1). Prof. E. A. Adeyemi.

(2). Mr. Shi:: Adesina.

(3). Mr. Stan Kawka.

(4). Mr. C. S. John.

(5). Mrs. M. B. A. Urbanowitz.

HISTORICAL BACKGROUND

The College of Agriculture, Samaru - Zaria was first established as an in-service training centre at Maigana, an Agricultural settlement situated about 9 kms on the Zaria - Jos Road. In 1928, it was transferred to its present site at Samaru, on the outskirts of the Main-Campus, along the Zaria - Funtua Road. It started as an appendage of the Agricultural Research Station bearing the status of an experimental station.

Formal teaching began in 1931 with about 17 students as the initial intake. Buildings were erected on site in 1953 to accommodate both the students as well as their teaching facilities.

The school was handed over to the Interriun Common Services Agency (ICSA) in 1968 following the creation of states. The school finally became a constituent unit of the newly created Division of Agricultural and Livestock Services. Training of Ahmadu Bello University in June 1971, by an ammendment decree. The school has been raised to the staus of a College.

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

Hostel accommodation in Colleges of Agriculture in this country have been observed to be below the required minimum standard for proper student's life, especially in terms of facilities provided for recreation ... and the like. Emphasis has been laid mostly on the provision of bedroom spaces only, without due regard to present day needs of students in general. It must be emphasized that the training of middle - echelon man-power in the Agricultural sector is very essential for any meaningful development in the industrial as well as other arms of any nations economy.

It has bee n observed that Nigeria is lacking in required man-power to service the Agricultural sector of her economy. With respect to the above needs of the country, the Division of Agricultural and Livestock Services Training Centre was established to evolve a programme that will produce the required man-power needs of the nation. All Colleges of Agriculture in the 10 "Northern" States of Nigeria are governed by the Division of Agricultural and Livestock Services Training (DALST). Institutions under the DALST include.

(a). College of Agriculture, Samaru-Zaria.
(b). College of Agriculture, Kabba.
(c). Livestock Services Training Centre Kaduna. etc.

The College of Agriculture Samaru Zaria produces extension services workers to co-ordinate the Agricultural development programmes. Students in the institution are drawn mostly from Secondary Schools, Ministries of Agriculture and Natural Resources as well as from neighbouring countries like Chad and

Niger. Products of the institution are awarded certificates or Diplomas depending on the discipline pursued. From the on-going, it can be seen that the welfare of students in Colleges of Agriculture should be well taken care, if the required man-power needs are to attained.

One of the major goals of the Ministry of Agriculture and Natural Resources is to produce enough Extension Services workers to the ratio of one extension worker to every 500 local farmers. With the present ratio of one extension worker to every 2,800 farmers, a considerable expansion is required in the Colleges of Agriculture if they are to meet the demands of the farmers who need their assistance to carry out new farming methods. One step in this direction is the upliftment of the status of the institution from a School to a College of Agriculture. A new site has been proposed to provide new teaching facilities as well as expand the hostel accommodation facilities to cater for a larger number of students. This is just one of the major steps taken to improve the condition of the school as it is at present.

Some of the major goals of the Division of Agricultural and Livestock Services Training (DALST) are stated below:-

(i). To expand enrolment capacity of the Division of Agricultural and Livestock Services Training (DALST) Schools to 1,200 by 1975. This has not taken place to date .

(ii). To initiate a programme of specilization within the schools to meet the demands of the nation.

(iii) To attract and hold increasing numbers of qualified staff as a means of expanding enrolment and for offering specialized programmes.

(iv) To improve knowledge, teaching skills and overall effectiveness of teaching and support staff through a variety of staff development programmes.

(v) To develop an organizational structure with the ability for efficient administration of the large, complex and rapidly expanding DALST organization.

(vi) To systematically study and update the curriculum of various Schools programmes offered.

(vii) To steadily improve upon the standards of the certificate and Diploma Courses offered.

(viii) To provide, within limits of resources, appropriate consultancy and support services to emerging institutions offering non-degree courses in Agriculture.

(ix) To move in the direction of increased specialization of programmes within DALST Schools while phasing out or decreasing emphasis upon certificate courses of a general nature as states develop their own capabilities.

(x) To contribute to further development of the over all agricultural movement in Nigeria and West Africa.

From the stated goals of the DALST, it is quite clear that the institution is passing through a major change in its curriculum which also calls for new infrastructural facilities to cope with the rapid change. In fact, a new site has been proposed for the teaching facilities like classrooms, laboratories, libraries, assembly hall, auditoruin as well as hostel accommodation facilities to cope with large intake of students.

At present, a rough estimate of the relationship between the number of extension workers and farmers is about one extension worker to 2,800 farmers. It is quite clear that for any meaningful contribution to development of farming methods, this ratio has to be reduced to at least one extension worker to every 500 farmers. This calls for expansion to the scale of 600%. Though this is not quite possible in one expansion phase, it is envisaged that several phases of expansion will have to take place in all the Colleges of Agriculture in the country as well as other institutions of higher learning like the Polytechnics and Universities.

The following table gives a breakdown of enrolments in the various Colleges of Agriculture from 1971 - 1975. The situation is not different at present since no new facilities

have been installed on the college premises or the proposed new site for the college.

	Bakura	Kabba	LSTC	Samaru	FTE	Total
1971	-	-	-	-	-	244
1972	25	86	86	260	38	475
1973	62	194	154	323	44	775
1974	86	166	186	456	69	963
1975	80	291	222	563	146	1302
Total:	253	737	648	1602	297	3759

*FTE is full time equivalent for short courses offered during the long vacation. (January - March) including Pre-technical courses. From the table shown above it is quite clear that none of the institutions has reached the expansion figure of 1,200. In fact, it is only the College of Agriculture Samaru - Zaria that has achieved a rough estimate of about 40% of the proposed expansion figures. Other Colleges of Agriculture have fallen short of the figures and are therefore in dare need of a proposed expansion master - plan. As of now, only the College of Agriculture, Samaru - Zaria, my chosen site for the thesis project, has a proposed master plan for its expansion. It is expected that by the time its expansion programme is fully implemented, its enrolment figures will rise from 563 (1975 figures) to 1,200. This means doubling existing facilities on site as well as creation of new infrastructural facilities. It is due to the constrainsts of the existing

facilities at the college premises that called for an entirely new master plan for the college on a new site. The situation at present at the college is that the teaching facilities have been separated from the hostel facilities by a major - road linking Zaria town to Funtua - Sokoto. This is a serious hazard to the lives of the students especially in the busy early morning rush to offices. Another constraint is that there is not sufficient space for expansion at the present site of the college.

From the on-going, it is quite clear that a new site is needed to cope well with the proposed expansion of the college which is expected to be carried out in several phases. Secondly there is need for extra land for further future expansions, should in case the institution decides to have a further expansion of its facilities. This is due to the fact that each of the DALST institutions will have to under go an overall expansion of 600%, the present expansion phase being only about 100%.

A closer look at facilities existing at the present site of the College of Agriculture Samaru - Zaria shows that they are quite inadequate. Firstly, the teaching facilities can't cope with the present number of students, let alone the proposed expansion of the site. The Library Complex cannot accommodate more than 50 students conveniently at a particular instance. Sunilarly, the classrooms are not large enough to

accommodate the number of students offering courses. In such a case one does not expect to even find some of the modern teaching aides like the Audiovisual centre laboratories for practicals or even rest spaces for students in between lecture hours. There is not a staff-room for staff members, where students can go to incase problems arise during a students study hours.

Similarly, the hostel accommodation and its related facilities are quite deplorable. In the first instance, the rooms of the "new" hostels are indaquately furnished to cater for the number of students sharing a room. A single wardrobe is provided for linen storage among students. There is no provision for study in the bedrooms should in case a student chooses to do some work at home. So also, some of the students are accommodated in spaces not supposed to be used for accommodation. The present kitchen - dinning hall is used temporarily as accommodation space for female students. The old buildings constructed when the institution moved to its present site are still being used for accommodation. This is a situation where an average of about 4 students share a common sleeping space, which I feel is not conducive to proper living among students in an institution like the College of Agriculture, Samaru - Zaria, whose students are drawn from Ministries of Agriculture and Natural Resources, Secondary Schools as well as from neighbouring countries like Niger and Chad. It should also be noted that summer course are held

for officials from the Ministries who are not opportuned to spend a whole academic year due to constrainsts like the maintainance of families as well as places of work. It will be quite unfavourable for a married man to share a room space with say about 3 other students who may be youthful or other wise.

These defeciencies are in terms of the existing facilities on the site. The hostels are not provided with common-rooms for in-door recreation or relaxation, their is no space for the entertainment of guests, or a T.V. viewing centre, let alone a space for communnal meetings among students. Similarly there is no Auditorum for public lectures or symposia. It should be noted that such an institution requires such facilities to enhance exchange of ideas between students of various disciplines as well as between the students and the society at large.

It can therefore be seen that the teaching facilities and hostel accommodation facilities are by far below the required standard needed for proper dispensation of ideas between the students and staff as well as between the institution and society which it is supposed to serve.

Firslty, there has to be radical change in the approach to teaching of Agriculture and its allied courses at the institution. This calls for modern teaching aids and

infrastructures like experimentation farms, audio-visual centres multipurpose halls for meetings as well as a well equiped - modern laboratory for research in the various courses offered at the institution. Similarly, modern accommodation facilities should be provided for the students. We all know that Authorities runaway from designs that do not lay too much emphasis on bedroom accommodation. But it should be realised that a well designed institution's site will enhance the over-all ability and productivity of their students. Similarly, tensions coming up among students can find an easy out let if facilities stated, like the common - rooms well designed bed-rooms with an average number of facilities required in a students study bed-room. Out-door recreational facilities like gardens, sporting facilities like lawn tennis etc as well as in-door sports spaces should be provided to enhance physical development of the mind as well as being a forum of interaction between the various institutions responsible for the development of Agriculture.

From the on-going, it is quite clear that for any meaningful development to take place in the Agricultural sector of any nation's economy, sufficient man-power is required to service the institutions that are expected to carry outvital functions. Firstly, students in such institutions have to be provided with the basic necessities of life, so that they will feel wanted by the society. Secondly, renumerations in terms of salaries

and other fringe benefits have to be provided so that students are attracted to this vital profession, which is the basis of development of any country. Therefore, it is necessary that the government is convinced to provide the necessary infrastructures in institutions that produce the middle - echelon man-power that services the Agricultural sector infact, it may not be out of place if a policy in this direction is established once and for all. It is due to the neglect of students from Colleges of Agriculture and other allied institutions that has led to the nation becoming a net-importer of good items, when it used to be a major exporter.

In condusion, it is necessary that funds are provided for the rapid expansion of Colleges of Agriculture at existing sites similarly, new ones are to be set up in various parts of the country to give on the spot training to local farmers as well as students wishing to make a career out of farming. Modern facilities like research laboratories, experimentation farms as well as areas for poultry and other allied activities should be provided close to the institutions so that the teaching and practical aspects of training can be well co-ordinated. Modern hostel blocks which contain required facilities should also be provided so that the students' get a "home away from home."

AGRICULTURAL TRAINING METHODS IN SOME WESTERN NATIONS AS WELL AS IN AFRICA

Great Britain:

The general policy on the agricultural training was organised after a careful analysis of function of the various Ministries which co-ordinate the production, processing and export of food items from its state as a raw material to the finished product state. The policy is briefly outlined:

(1) To provide a stable and efficient agricultural industry capable of producing the nations food.

(2) To produce these food stuffs and other agricultural products at minimum prices and yet procure ren meration for the producers.

(3) To provide farmers with technical advisory services and grants.

(4) To provide facilities for agricultural research and education.

There are three categories of institutions that provide the man-power needs of the country, namely the Universities, Colleges of Agriculture and Farm Institutes. The Universities produce the man-power needs in the field of research into seed-types, resistance to various weather conditions and

optiyum conditions required for the growth of particular seedlings, especially those required for export. The Colleges of Agriculture produce middle - level man-power for the Agricultural Industries as well as extension services to farmers. The Farm Institutics are used to train potential farmers. They are taught the basic skills required in the profession as well as ways in which their products can be sold to the market. A wide range of short courses are provided for the farmers so that their knowledge is not limited. Similarly, they will be in a position to absorb ideas that come out from the various Research Institutes as well as Colleges of Agriculture

Unted States:

Training normally takes place in Land Grant Colleges and State Universities. Courses in these institutions are of a general nature during the first two years of traning. This allows for flexibility in training as well as giving participants a broad knowledge on the approach to farming, sale of products, quality control as well as advertisement of farm products. Courses offered in the initial 2 years include Agronomy, Animal Husbandry, Diary Husbandry, Poultry, Horticulture. The Universities produce graduates that will carry out research in modern Agricultural Science, mechanized farming methods, processing and distribution of food products as well as long-time storage of food products.

Ghana:

Ghana is an agricultural country with Cocoa as its major agricultural product. About 50% of its population are engaged largely in farming, timber production and other agricultural services. More than 20% of these are engaged in Cocoa production.

Since Cocoa forms a major foreign exchange earner for the country in conjuction with other products, it was necessary that a policy be developed on the production, processing and sale of farm products. It brief account of the policy is as follows.

(1) To diversify the method of Agricultural production in Ghana so as to achieve a round economic basis.

(2) To establish extension services to meet the needs of development and thus form a basis of raising the production of food commodity crops for interual consumption and export.

(3) A competent cadre of trained officers to execute the programme must be established.

(4) Training centres for farmers in various ecological zones of the country must be established.

(5) To provide an agricultural advisors of panels that will give assistance to farmers in land cultivation, seed multiplication, processing of crops and other facilities.

(6) To preserve as much as possible the natural resources of the soil.

Extension services to farmers are of two categories, namely:-

(a) Indirect:

This is carried out by trained staff who form a link between the farmers and specialist scientists engaged in agricultural research programmes at various institutions of higher learning.

(b) Direct Services:

This involves (1) rai ing and distribution of seedlings, planting equipment and livestock to farmers; (2) cultivation of land at fixed rates by means of hired mechanical equipment; (3) sale of fertilizers and buying of farm products.

Training of Agricultural staff to carry out these functions is carried out in three broad categories.

(a) Training of Government Agricultural staff.

(b) Training of established farmers at Farm Centres.

(c) Training of young aspirants to various standards like the specialist extension services workers and would be farmers.

Students are introduced into the elementary sciences in the early stages of their career courses include Botany Chemistry, Animal Physiology, Plant Pathology etc. Later stages include the study of General Agriculture, Farm Mechanization Systems and Agricultural Extension Services. This stage is concluded by posting students to station in various parts of the country so that they may acquire some practical experience.

Nigeria:

Nigeria's rural populace earn their living from farming, which in the early 60's accounted for a major source of revenue for the nation. With the development of the oil sector, agricultural development has, of recent been relegated to the background.

Therefore, no clear cut policy has been established to direct the development of agriculture nor its man-power needs. Various states have developed policies as the situation in their environments have dictated. The major concern is the production of food to meet local food requirements, since the

country has not been able to meet its food requirements. In fact, the country has turned from anet exporter of basic raw materials like Cotton, Ground-nuts to importers of the same. In fact, agro-allied industries have of recent, depended to a large extent on external sources of raw materials.

With the establishment of the "Green Revolution" by the present government it can be observed that a clear cut direction is being established in the training of personnel to revolutionize the system of agricultural production in the country. Various Agricultural Co-ordinating boards have been established in major areas of production. For example the Grains Board has been sited in Bida, a major centre for the production of Grains like rice and wheat. Similarly, the Ground-nut Board in situated in Kano, another major centre for ground-nut production. Therefore, it can be observed that a general policy has been established to co-ordinate the development of the agricultural sector of the economy. Since these various Boards are established in the states, their activities are controlled by the policies established in the states they are situated. However, a general policy on agricultural development and its man-power needs can be viewed as follows:

(a) To establish and active extension service on which future increased productivity will rely on.

(b) Increase the capacity of institutions responsible for the training of personnel that will direct the extension services. Such institutions includes the Colleges of Agriculture, Training Centres as well as the Universities and Polytechnics.

(c) Location of Agricultural Governing Boards in major areas of production of particular food items like ground-nuts. These boards are expected to co-ordinate the methods of production, sale and storage of food items as well as the training of man-power needs of such programmes some of these boards hav e already established such facilities as the tractor hiring services, sale of fertilizers as well as improved seedlings.

(d) Training courses for local farmers and prospective farmers in rural centres with a view of giving on the spot assistance to the farmers. Such trainings take place in Irrigation Farms Established by the Government.

(e) Provision of fertilizers and various seedlings to farmers at subsidized rates.

(f) Hiring centres for such equipments like tractors, spraying machines for pest control storage facilities etc.

(g) Provision of bank loans for increased productivity.

From the stated objectives of the DALST, it can be seen that the training of man-power is one of its major pre-occupations. This type of development requires a high level of infrastructural provisions that can cope with the required expansions. One of most important facilities required is the provision of adequate hostel accommodation, since the Faculty of Agriculture, A.B.U., Zaria is situated next door to my case study, College of Agriculture, Samaru - Zaria. Facilities like modern laboratories and the like can be shared between the sister institutions in other to cut down the expenditure on expansions.

It must be emphasised that for any meaningful development to be carried out in Agriculture, it is necessary that the required number of middle echelon man-power are produced to service such a programme. It is one thing to publicize a development programme it is yet another problem to actually carry out such a programme.

GENERAL INFORMATION ON HOSTELS

The students' room is the smallest element and the basic space in determining various planning criteria of a students' hostel. It is the core environment where a student spends a large percentage of his time during any working day, with due respect to the classroom walls. The student stores all his clothes, books and other personal possessions in his room and also uses the same space for the entertainment of freinds. It is the space where the student has the opportun ty to establish his identity, since other spaces around are mostly for communal purposes i.e. common rooms, dining hall, theatres etc.

The Room-Cell:

The students' room is here viewed as the smallest and most important element in the space allocation in a students' hostel.

The room cell derives from the concept of room and cell From a technical point of view, the room is a three-dimensional unit-cell, which grows organically in various ways. Therefore, the unit-room cell in the students hostel, the bedroom space for a single student, grows organically into a dormitory for mass accommodation of students such as is used in some primary schools and colleges or it grows into single

or double bedrooms in other Colleges and Universities.

The rules, conditions and specifications which must be taken into account when constructing a room - cell, are the floor, ceiling and entrance situations of the various units. For it is necessary to have a predetermined room cell which will allow for the stacking of various units both in a horizontal as well as in a vertical manner. There are three major activities that are carried out in the basic space, the students' room namely.

(a) Sleeping

(b) Study

(c) Storage of Personal Belongings

(d) Socialization.

Of these activities, the sleeping and socializing ones are the most important in the determination of the use of the spaces in a students room.

The students pattern of activity is not consistent. He may sleep at any time of the day or night. Hence, it is observed that two occupants of a bed-room hardly follow the same pattern of activities. It is these varying patterns of activities of occupants that brings about complexities in the design of students bedroom. It is observed that while an occupant is sleeping or studying in a relaxed mood on his bed, the other occupant may be entertaining friends or

also he may be in mood of listing to some music from the Hi-Fi set.

From the on-going, it can be seen that apart from the single bedroom units which are found in Universities, design of bedroom units for two or more occupants calls for a lot of compromise on the part of the users. Areas of conflicts due to varying activity patterns can only be minimized by the provision of spaces that will cater for activites that bring about such conflicts. Hence, it is necessary that living room spaces, for Television viewing as well as histening to Hi - Fi set, should be provided in students hostels in other to minimize areas of conflicts. Thase spaces can also be used for the entertainment of visitors. Therefore, by the provision of these basic needs of students in spaces other than their bedrooms, the room units are reduced functionally to sleeping areas as well as spaces for some private studies.

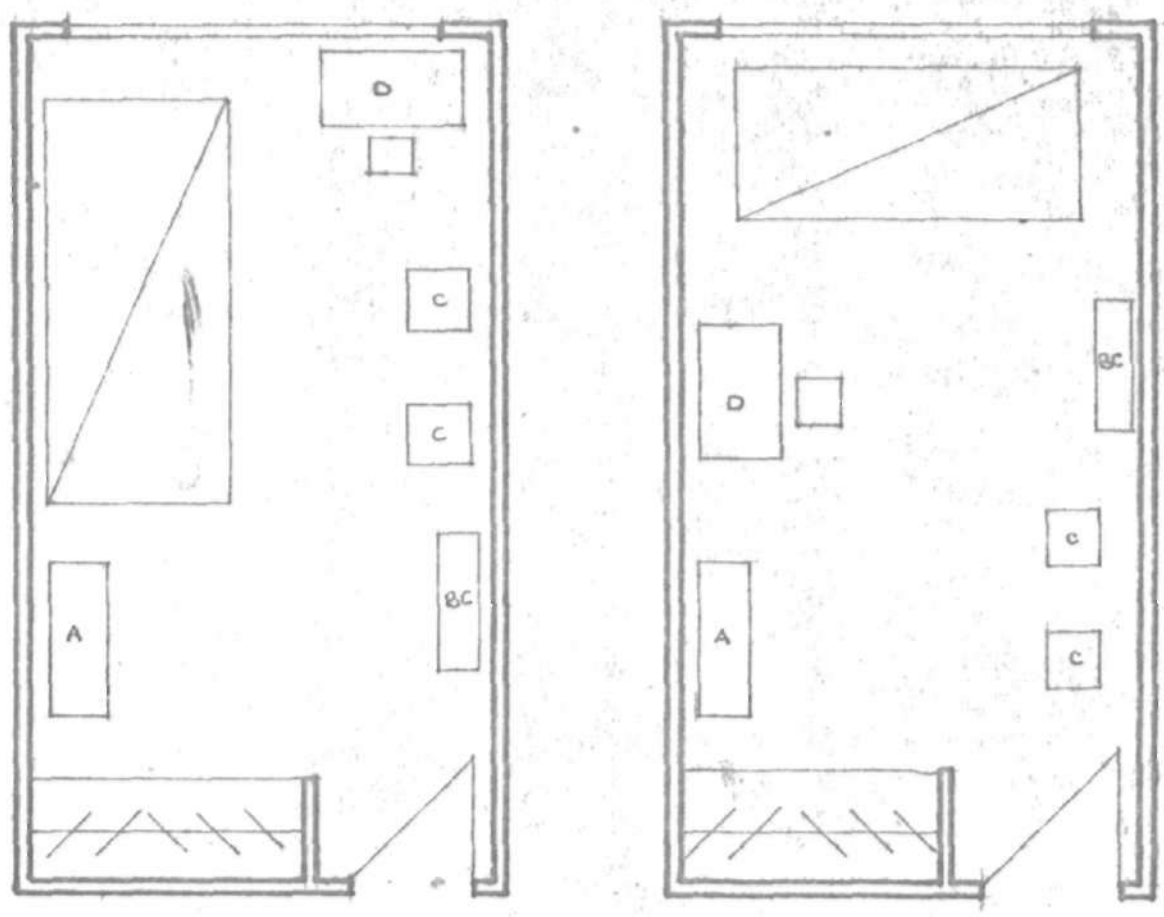
In terms of its use as a space for socialization, the student's room presents difficulties in use especially when the opposite sex is involved. In some cases, students have used such moveable facilities of the room like the wardrobes, book shelves an well as blankets, for the purpose of partitioning the room into various spaces still, the over riding problem of complete privacy is difficult to achieve, especially whon more than one occupant is accommodated in the enclosure.

Types of Spaces (Room - Types):

(1) Single Bedrooms:

The single occupant bedroom provides controlled privacy for its users with respect to other room - types i.e. double occupants, triple etc. Such a room may open directly into a common corridor or else it may be joined to other units around by spaces like the living spaces common - rooms as well as partitioning elements like the ward-robe, shelves etc. Privacy for sleeping and socialization can be controlled if adequate acoustic separation between the bed-room and adjacent spaces is achieved.

The arrangement of furniture in the single bedroom should be such that the user can study, entertain friends with a slight re-arrangement of furnitures in the room. In addition, the "user" should be able to play the radio phonograph, tape recorder or other musical equipments without creating anacoustic problem for neighbours. Minimum recommended floor area for a single room is about 12 sq. m. But a more generous floor area is about 15 sq. m. This area permits the user to arrange moveable furnitures in such rooms to suit his/her personal taste. (Sketch single room.)



A B

1. D - TABLE FOR PRIVATE STUDIES
2. C - COUCHE FOR GUESTS
3. BC - BOOK SHELF.
4. A - LOW CUPBOARD FOR ROOM EQUIPMENTS.

SINGLE BEDROOM UNITS

Split - Double Bedroom:

The split double room provides the social contact by two students sharing a common space but at the same time recoginzes and solves the problem of conflict of interest in the students study and social patterns although with minimum acoustic separation. The split double room consists of two spaces with a connectiong space or opening. Such co. ections may be doors, corridors and generous situations toilet facilities. Whmn such connection are made from moveable furnitures such as ward-robes or shelves, some degree of privacy is obtained by the break in usual contact between occupants while the acoustic contact still remains. However, when the connection between the spaces of the room is amplified, that is by the use of doors or the provision another space like the toilet units, there is a degree of visual as well as acoustic privacy. It can be observed that this is similar to situation obtained in the single bed-room units. The provision of two spaces makes it possible for one student to sleep while the other studies or entertains friends. This type of arrangement makes it possible for each of the students to treat his/her space according to individual tastes while still maintaining necessary social contacts with a neighbour. For it is noticed that occupants of a single room have a problem of boredom due to the absence

of a partner to discuss with or get some sort of assistance that may be required within short notices, like the need for someone to wake him/her up after a late night in the classroom or the need for simple items which students in a particular room may share together, e.g. books, cooking equipments etc.

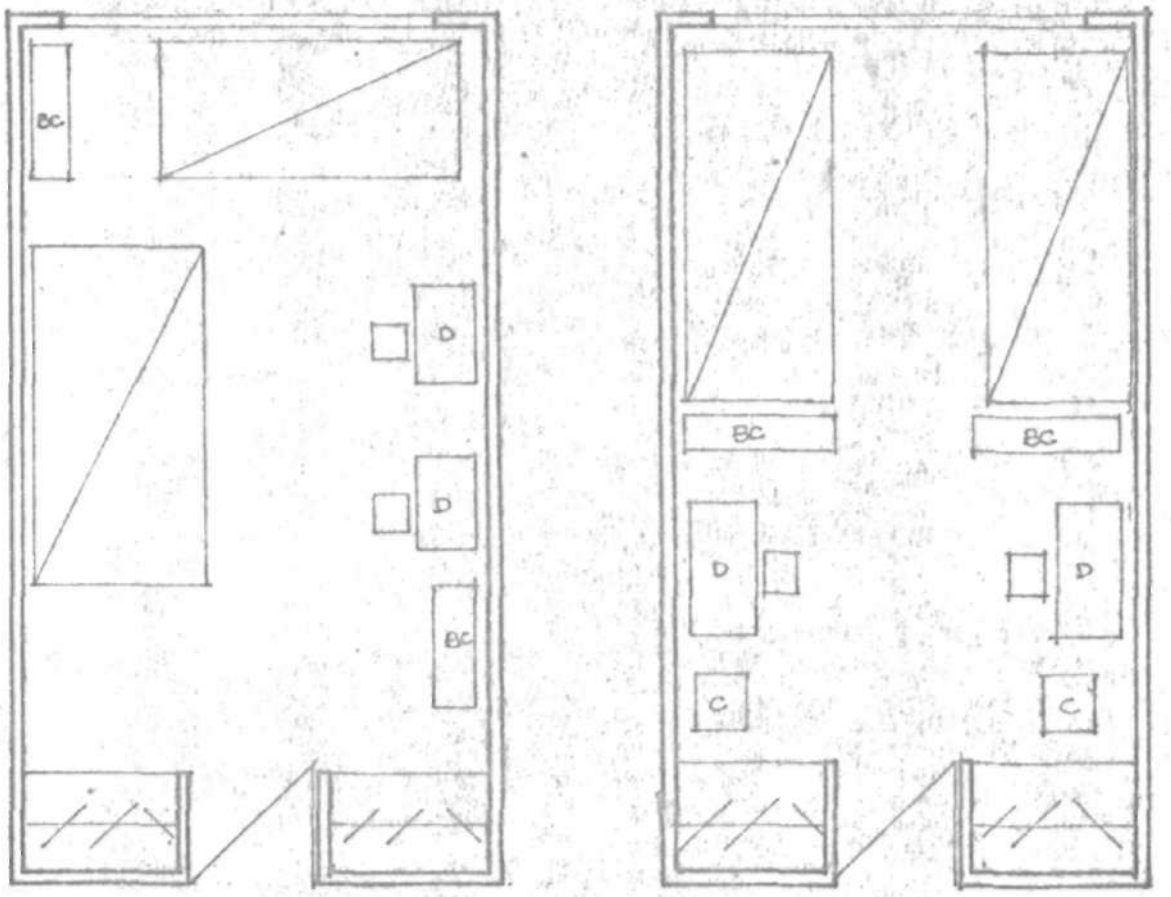
Therefore, the split double rooms would permit the students to treat each of the spaces as a single room with direct communication between them. The spaces may be separated on activity basis with the study, and living facilities being kept in one place and the sleeping dressing facilities in the other. When one of such spaces is large and the other small, students may be in a position to live separately especially when a situation arises where there is a conflict of interests.

Hence, if two students must share a common space, this arrangement may suffice since it makes it possible for occupants to either live together or separately as the case may be. By a simple rearrangement of furintures, it is possible to get a lot of variety in room spaces especially in situations where a lot of these bedroom units are grouped together.

Double Bedroom:

This is the present standard in students housing and it is economical in terms of cost in use of spaces. However investigations have revealed that occupants are easily irritated by conflict of interests since there is no visual or acoustic barrier formed between the users. The bedroom space is lacking in terms of privacy and quiet but on the other hand, it is quite enhances contacts among students. However, where such spaces are provided for students, especially in places like Universities, it is necessary that adjacent spaces be provided for living/study activities as well as recreation and entertainment of friends. This will go a long way to reduce areas of conflicts between occupants.

Floor areas very from 13sq. m. to 18sq. m. A generous use of space will put the area at about 20sq. m. With a generous floor area, alternative furniture layouts and room shapes can be achieved. It is then possible to split the room into two basic spaces, each space containing the sleeping and study activities. Moveable furnitures are particularly helpful as partitioning elements in such rooms although there is a drop in circulation space around the room. Similarly, one student will definitely be at advantage, since he/she will occupy the inner part of room, and is therefore saved from the nuisance of the noise from the corridor, which is a necessary connecting element in double bedroom units. (see Sketches).



1. D – TABLE FOR PRIVATE STUDIES
2. BC – BOOK SHELF
3. C – COUCHE FOR GUESTS.

DOUBLE BEDROOM UNITS. (NOT TO SCALE)

Triple Bedrooms:

This type is found mostly in Colleges and to some extent in primary schools. In use, the space is sub-divided by such room elements like the wardrobe and living space. There is no acoustic or visual privacy, since in most cases, the aim is create "an environment of compromise" between the occupants of space. With the use of moveable furnitures it is still possible to achieve some degree of individuality in the space. The possibility of achieving some individuality in the use of this space has made this type of bedroom units popular in primary and secondary schools. Optimum floor areas range from 20sq. m. and above. This makes it possible for a variety in the arrangement of furnitures and spaces. One major disadvantage is that where conflicts exist between users of the space, it is difficult to create a visual as well as acoustic barriers.

When alter native spaces are created for some of the activities of the occupants, areas of conflict are minimized. Such alternative spaces include common - rooms, in-door recreation spaces as well as Television viewing centres.

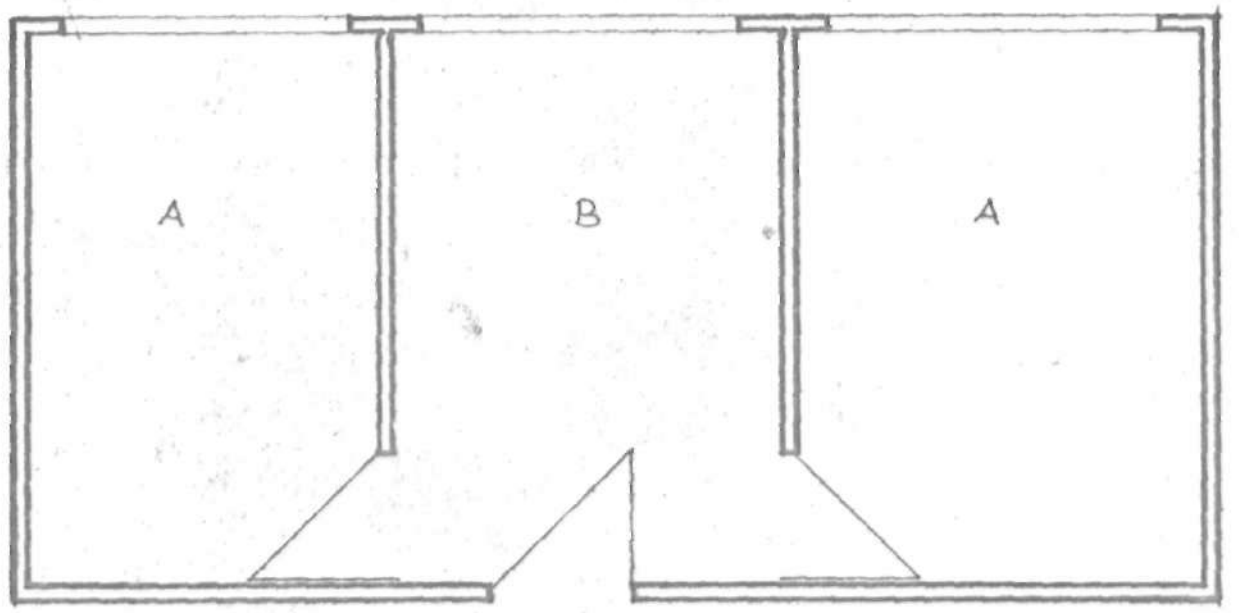
Four Student Bedroom:

This has similar problems as the double-triple bedroom units. However, where the room is large enough, it can be subdivided into smaller spaces by means of moveable furnitures as well as blinds. This particular type of room is very unpopular with students except in cases where a group of friends choose to stay in such spaces.

Where this type of bedroom unit has to be used, adequate precautions should be taken to give enough privacy to students using the space, especially the disposition of the sleeping zones vis-a-vis the study/living area. This procedure will go a long way to minimise areas of conflict between the students.

Bachelor Suites in Youth Hostels:

A suite is an arrangement in which four or more students share the total space in single or double rooms with a common space as a connecting element. Such a common space, like the living - room or common-room is the only avenue for social contact between the students using such spaces. Hence students using such suites have at least a space under their control, which they can organize the major activities of room life i.e. sleep, study or socialization. The major advantage in this type of hostel design is the opportunity it affords students for closer co-operation as



A - DOUBLE BEDROOM
B - STUDY | LIVING ROOM.

SUITE.

(NOT TO SCALE).

well as the freedom to organize such spaces under their control as they wish.

The common space within a suite:

(a) reduces or eliminates some of the areas of conflicts between two students sharing a single room.

(b) provides for social activities as is the case in a living room in residential designs.

(c) provides an avenue of social contact for those students who may not have easy association with other students.

Sharing a common space between a group of students provides the opportunity of flexibility in furniture arrangement in the sleeping suites. Students are given the opportunity to rearrange the space according to their tastes. It is possible for 2 students to use a sleeping space for one student, while the other space left can be converted into a common living space for studies etc. Typical patterns are a common room used as a study, one room used for the sleeping activity, with other rooms used for social purposes like Television viewing and entertainment of friends.

Suites composed of single rooms rather than double rooms enhance privacy but have the disadvantage of using large floor areas since other elements like the corridor will become necessary. Corridors have become necessary in this type of design since the separation of the sleeping zone from the

common-room space is in most cases only a door. This does not provide enough acoustic shield against noise transmission between adjacent spaces.

One major problem is the location of other common facilities like the toilets, laundries. Should these facilities be provided for individual suite units or for a group of such suites? This is a problem of priorities in the design of the hostel and other factors like the cost implications. Within a suite, it is important to organize common spaces so that their in privacy between the common-room, bathrooms and the sleeping zones. Problems of conflict occurs when it is necessary to pass through a common living space between the bathroom and the dressing zones of the suite. Therefore an approach in design using this type of arrangement should give avenues for various conflicting activities to take place at the same time.

A general consensus of opinion among students is that 3 - 5 single students form the optimum group for suite living. In such cases, they say it is necessary to provide a common living room and a separate space, away from the entrance for the study activity. Cases where study/living rooms are provided for a group of students brings about conflicts in activity patterns, resulting in the use of the bedroom space for studies .

Catering:

Another general aspect of student housing is the feeding patterns. To alarge extent, students prefer cooking their own food. They eat either in the bedrooms (in most cases) or in near by dining spaces where these are provided. Feeding in bedroom brings about the problem of infiltration of dirty plates into the sleeping zones as well as the living space for entertainment of friends. Therefore, it can be observered that it is necessary to provide a small dinning space adjacent to cooking space. This makes it possible for students to cook their own food, eat as well as wash their plates.

From the on-going, it can be seen that it is necessary to provide a small shop for groceries and small food items in tins etc. for the daily needs of students. Such a space should not be in a conspicous position, so that "intruders" may not use this private facility. Where it is not possible to provide a shop, kitchen and dinning space for private cooking, a space should be created for rent to a prospective dealer in catering. The type of food to be sold in such a place will be dictated to a large extent by the students. This will serve as a nice alternative to the dinning hall complex, which students feel is a time consuming activity, especially during crucial examination periods.

There is the general opinion that single large rooms serving as dinning space for hundreds of students is not the most convenient solution. Although a large kitchen with its extensive equipment, service line arrangements and the like is the most economical and efficient method for food preparation, the large dinning room for all students is not the most conducive arrangement for social interaction, especially during meal times. While some school of thought feel that the dinning space is an avenue for contact among students who reside in various halls of residence, I feel that the time spent on meals and the need to give way for the next group of students limits the avenue for social interaction during meals. Usually, students are either going for lectures or coming from lectures tired from the day's work. During the brief time spent in the dinning hall the students find it quite inconvenient to carry out any social activities apart from short discussions.

Therefore, dinning facilities that combine the best advantage of the large kitchen efficiency, economy, flexibility - while at the same time providing a pleasant and social dinning environment can be built to provide avenues for dinning as well as recreation - relaxation after meals.

Such arrangement can involve the joining of the dinning space to a common - room or buffet where soft drinks and the like can be sold. In such a situation students can move to the adjacent space for further relaxation inmediately after meals. This will also provide a forum for social interaction between students since they can spend as much time as they wish in the buffet without being a . hinderance to any one.

Similarly, large dinning spaces can be subdivided into smaller spaces by moveable partitions. This type of arrangement permits greater intimacy between diners. Such moveable walls can be pushed back when the arena is needed for such occassions like dances.

Food preparation in student rooms presents a safety and sanitary problems. Safety in the sense of fire hazards and sanitary due to the filthe that sorrounds spaces used for private cooking in students hostels. But the need for between meal snacks can be solved by the provision small snack bars in the students hostels or by kiosks situated close by students private food preparation problems cannot be solved by unenforceable prohibitions by anthorities but by the construction of appropriate spaces with built in cooking devices and controlled food storage facilities.

Recreation and Social Activities:

Assimilation of the students into the new society is the foremost concern among new students. Recreational spaces and facilities are important in providing environmental support to this much needed interaction among old and new students, since academic and social assimilation are restricted to the classrooms and bedrooms. However, care must be taken in the spaces provided for recreational activities so that they do not conflict with other activities going on in the students hostel, otherwise the spaces will fail to accomplish the purpose they were created for investigations have revealed that a variety of small spaces are likely to be most successful solutions.

Students are not satisfied with the conation of common rooms as well as its size. The variety of equipments like the T.V. radio, newspaper catalogues, which are communal in use cannot fulfil the much needed space for individual entertainment of friends as well as provide the much needed privacy. The tendency in most student common rooms in for the space to become monopolized by a particular group activity like T.V. viewing, making other individuals or group activities influenced or distracted. A recent study shows that 32% of students resident in a particular hall make use of the common room space for socialization less than once a week, and about 36% make use of the space more

than once a week. This is largely due to the fact that the space does not accomplish the purpose it was designed for. An ideal approach to this design problem is to sub-divide the space into various activity zones that are accustically and visually screened from one another.

Small "date" rooms are popular when not over-supervised. This space provides an alternative space for intimidate social contact between students especially between students of opposite sex. If this space should be designed not to give too - much privacy to users, it will serve as good solution to a major source of conflict between occupants of a double bedroom unit in a student.hostel. However, date rooms seem to be an artificial solution better solved by providing various social rooms or ultimately, single bedroom units for all categories of students. This idea will not sound nice to Authorities of institutionsespecially in terms of cost implications.

Television viewing spaces are fast loosing their importance since some students can afford to have those facilities in their bedrooms. Therefore, it is being suggested that spaces should be created where various activities take place at the same time. However adequate provision should be made for privacy and non-interference in various activities.

In conclusion , recreational spaces serve to bring the students together and also releases any tensions that may have built up during the stenous academic routines. The spaces serve also to strengthen relationships between various students groups who hitherto, have no other alternative spaces for social contacts. However, care must be taken in the areas programmed for recreation, so that they truely accommodate the intended activities however conflicting.

REVIEW OF EXISTING HOSTELS IN ZARIA

A general survey of existing students hostel was carried out to determine the degree of success achieved by existing designs. My investigations were carried out in two centres namely Main Compus, Ahmadu Bello University which has a variety of designs in students hostel and the College of Agriculture, Samaru - Zaria.

Main Campus, A.B.U., Zaria:

Three halls of residence were chosen for analysis, namely ICSA - RAMAT hall, Suleiman hall and Ribadu.

ICSA - Ramat Hall:

In this hall, the double and triple bedrooms are in use. Interviews held with students residing in these halls have shown that to a large extent, the double bedroom units are preferred to the triple bedroom units. Investigation into reasons why these triple bedroom units are disliked have revealed that occupants of the room do not have a fair share in the use of the bedroom space. In the first instance one of the occupants is situated close to the door of the room, which is very inconvenient, especially during afternoon rest periods. Guests coming into the bedroom may also infringe on the privacy of the occupant staying close to the door. Secondly, that same occupant by the door does not have equal access to study area when compared to the two other mates.

In otherwords, there is an unfair use of the bedroom space in triple bedroom units.

In the case of the double room units, the major complain is that occupants find variety in use of the space a difficult thing to come by. Any attempt to rearrange the bedroom space to suit the taste of the occupants results in conflicts in the activities going on in the bedroom space. In general however, this type of bedroom space is preferred to the triple units since occupants have a minimum of one source of conflict in the use of space.

In terms of the sizes of the bedroom spaces, in the hall, it is a general consensus that they need to be made larger in other to accommodate some necessary facilities found in rooms like the T.V. Stereo and refrigerators.

The planning of the hostel blocks is good according to some students except for the fact that the areas around the bedroom units have not been designed to accommodate out door recreational activities. Students feel that the court yards should be paved in other to keep the sorroundings neater and dry, especially during the wet seasons. In general, the students like the separation of the vehicular and pedestrain movements, especially with the introduction of the speed ramps. These ramps have reduced the risks of accidents around the hostel.

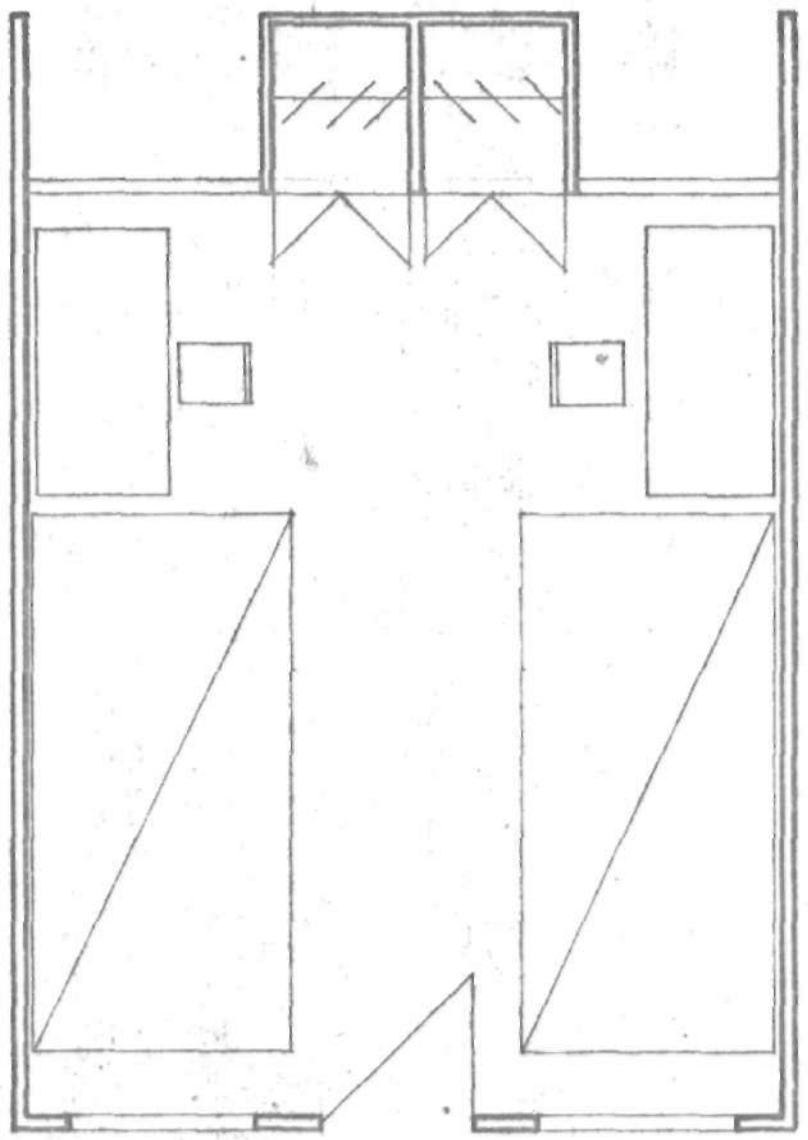
(See Sketches)

Suleiman Hall:

Bedroom spaces consist of single and double bedrooms. Arrangement of furnitures in the rooms is less restricting since most of the furnitures are moveable. Therefore it is possible for the students to achieve a variety of bedroom space arrangements. Generally, the double bedroom spaces are more spacious than those in ICSA - Ramat hall, but not large enough for students to sub-divide into two basic spaces for privacy purposes. Problem of ventilation is adequately solved, but the location of louvres at the lower part of the wall along the corridor has created a security problem. This is because the louvres are removable especially when left open landscape around the hostel blocks is better than is the case in ICSA - Ramat hall because the area has been treated for all weather purposes but on the other hand, it is not suitable for outdoor recreational activities.

One major setback is the grouping of many hostel blocks very close together. This has resulted in noise interference as well as visual contacts between the hostel blocks. Similarly, facilities like the toilets and laundries have been located at intersections of circulation.

Other facilities have been provided like the common-room and dinning hall. However, only the dinning hall has been centrally located. The common room has been placed at



DOUBLE-UNIT, SULEIMAN HALL.

(NOT TO SCALE).

provided for group meetings among students since the lecture theatres have been converted to venues for such activities. Spaces between hostels should be landscaped to provide spaces for outdoor recreation. This spaces if when properly used can serve as an avenue for social contacts between student groups. It should also be emphasised that it is necessary to keep vehicular traffic away from the outdoor spaces close to hostel blocks since this has created a physical hazard to the pedestrian. Pedestrain networks should be isolated as much as possible from vehicular parking spaces. This has become necessary since motor - cycles and bicycles are freely ridden on pedestrain - walkways as is the case in suleiman hall.

College of Agriculture:

There are two types of hostel designs at the College site. One has been designed since the institution moved to its present site, while the other hostel design is located at the site for the thesis design.

The first hostel block to be discussed are those that have been designed to accommodate an average of about 4 students in a common space. Facilities provided for are not adequate for the number of students accommodated, hence it has been observed that there is a problem of privacy.

Facilities for study or storage of personal belongings are absent. The bedroom spaces have been grouped without due considerations to the social contacts necessary among various student groups. Similarly, no dining hall or common room facilities have been provided for the students, so that the students feed some distance away from their accommodation spaces. This situation is not conducive for proper student life.

The second group of hostel blocks on site are better than the first, even though they are lacking in basic necessities for a student bedroom. In this case, students stay in double bedroom units although inadequately furnished. Only one wardrobe hasbeen provided for the occupants. There is no provision for study in the bedrooms. However the hostel blocks have been grouped around a common court yard. This is useful since it provides space for outdoor recreation. One major fault in the overall grouping of the hostel blocks is that common rooms are absent as well as a dining hall. Infact, the existing dining space has been converted into accommodation space for females. This is very inadequate. Since there is no privacy in the space. Similarly it poses a health hazard to group over 20 mature students in one space. In such spaces, there is no provision for storage of personal belongings as well as private decoration of space around the

beds.

In conclusion, it is necessary that common rooms as well as dinning halls be provided for students. Similarly, outdoor recreation spaces should be provided to serve as a venue for social contacts between various student groups.

DESIGN OF NEW HOSTEL BLOCKS

From investigations carried out on various student hostel blocks around the thesis site, it was observed that they have not been successful especially in terms of facilities provided to accommodate some of the outdoor activities of the students. In most of the hostel designs emphasis has been on the provision of bedroom spaces without a corresponding number of related facilities. In other words, spaces like the commonroom for in-door games, recreation/living rooms, studies, private cooking recesses etc, are lacking in most student's hostel designs. This has led to increased activity conflicts between occupants of a bedroom space or between adjacent bedroom spaces.

In the proposed hostel design, an attempt has been made to solve some of the problems observed. Some of the basic facilities like commonroom spaces, study areas, recreation/living rooms have been included in the design. Below is a brief account of the design approach.

Bedroom Space - Hostel Block:

From my study on bedroom spaces on the Main Campus, Ahmadu Bello University and College of Agriculture all of Samaru - Zaria, it was observed that the arrangement of bedroom spaces has led to conflict in activities in the bedroom. In most of the hostels, there is an average of two to three occupants per bedroom space. In most cases, occupants have

not been given an equal opportunity in the use of the bedroom facilities.

In my design of the bedroom space, an attempt has been made to zone the bedroom space along the three basic activities supposed to be accommodated namely - sleeping study/living and storage of personal belongings. Since the bedrooms in the hostel are linked by a common corridor for circulation, the study/living area has been placed close to it. The sleeping activity was placed farthest from the corridor with the built - in wardrobe for storage of personal belongings placed between the two major zones. In otherwords, the storage zone has been located to act as a buffer between the quiet sleeping activity and the study/living activity which is a bit noisy due to fact that it is the zone used for the entertainment of guests. The study/living area is designed to accommodate a single guest per occupant in the double bedroom space. Provision has been made for storage of books as well as T.V., radios in the study/ living area as well. In terms of areas, the study/living and the sleeping zones are about equal in floor areas. This makes it possible for two occupants to stay on opposite sides of the buffer zone should in case a serious conflict arises. The bookshelf and stand for such items are moveable, therefore it is possible for the two occupants to share the bedroom space.

Facilities like the living room and toilets have been provided for the bedroom spaces on the basis of 6 bedroom units. Each of the six bedroom units has a toilet located at the extreme ends with a common living room as a connecting element. A stair case has been located directly in front of the living room spaces as well as in front of each of the entrance situation. The court yard has been paved to make provision for outdoor sitting and discussions among students. A study has also been provided to serve as an alternative space to the bedroom. All these facilities have been provided to reduce areas of conflict between occupants of a bedroom space as well as between adjacent bedrooms. Similarly, a tea - kitchen and dining space has been provided for each row of bedrooms. This is to accommodate the private cooking activity which is common among students. So also, by providing a dining space, it is possible for students to cook their meals, eat and clean the dishes. This procedure is quite necessary since the private cooking activity has led to the infiltration of the bedroom space by dirty plates and pots. Cupboards should be provided for storage of clean plates and pots either in the dining space or kitchen. This will go along way to keep the cooking activity away from the bedroom spaces.

In other to satisfy the day to day needs of the students, a small shop has been provided. This shop opens into the recreation space therefore, it is possible for students to entertain friends as well as relax away from their bedroom spaces.

Since the shop in hostel blocks are not large enough to satisfy all the student's needs, a meduim sized shopping centre has been provided in the students union building. This will supplement the average needs of a student around the hostel for a period of at least 2 weeks. Other requirements can be bought in Samaru village or in Sabon - Gari, Zaria.

Common Room - Dinning - Hall:

It is general opinion that apart from the bedroom spaces, the best place to enhance the coming together of various student groups is the dining - hall. In my opinion, the brief moment spent in dining hall as well as the need to give way to the next group of diners, does not give sufficient time for socialization among the various student groups in an institution with diverse courses. It is my believe that a space for such socializing activity be created adjacent to or as close to the dining hall as possible. This will make it possible for students to move into such a space where they can get together and intereact more closely at their own discretion.

In attempting to create an arena for social coutact in my dining hall design, I have provided a common-room adjacent to the dining space. The common-room has an open plan and is joined to the dining hall spatially. This will enhance free movement between the dining space and the common-room. Due to its open planning, it is also possible to group the various activity patterns to enhance social contact. Similarly other

facilities like a small bar for the sale of soft drinks and the like as well as cupboards containing latest magazines and newspapers can be provided. This common-room space can also be used for week-end parties which is a common-feature in students hostels. This is a serious case of noise interference since most of the parties take place late in the night and it is an inconveniencing activity to non-participants. By providing an alternative space for such a noisy activity away from the hostel blocks, an attempt has been made to reduce an area of serious conflict among students in hostels.

In terms of capacity, the dining hall can accommodate an average of 160 students at a particular instance while the common room can take about 40 students at a time. This is with due respect to the fact that the socializing activity will not take more than 30 minutes after meals as well as the fact that such spaces exist in the student's hostel blocks.

It is possible for the dining hall to feed an average of four hostel blocks within a period of two hours. It should be noted that not all the students will be compelled to use the dining facility since provision has been made for private cooking among the students. It should be noted that it is a common feature among female students to cook their meals.

Health Centre:

This facility was provided due to the fact it is quite necessary for such a large group of student and workers especially when such communal Health Centre does not exist in the

close vicinity of the college. The health centre is supposed to cater for minor ailments that are common among students and its supporting staff. Serious cases can be referred to the Teaching Hospital or the proposed specialist hospital in Shika which has reached an advanced stage in construction.

The health centre is supposed to cater for ailments like fever, general weakness of the body, minor psychiatric cases, minor maternity cases, minor bone fractures etc. Staff for the health centre will be provided by the Ahmadu Bello University Teaching Hospital. Provision of about 20 beds for admission of minor cases of epidenic diseases that may come up among the students or its spporting staff. Similarly, the admission facility is supposed to cope with cases within the competence of the health centre.

Gymnasium:

This is a meduim sized gymnasmin that can accommodate such activities like badimington, table-tennis, volley-ball, gymnastics and basket-ball (nake stift). Changing roons and toilets for male and female students has been provided. Similarly there is provision for open as well as closed storage of equipments for the gymnasium.

Site Planning:

The concept in the design of the site is the provision of a free pedestrian circulation between the various facilities as well as bringing the vehicular traffic as close as possible to the same. This approach is very necessary since a major reason for the provision of a new site for the teaching facilities of the college is the presence of a busy vehicular traffic between it and the students hostel. Another reason is the limited space for the proposed expansion of the college

Five new hostel blocks have been proposed to accommodate about 800 students. With the present number of about 200 students residing in the existing students hostels, this brings the total figure of students on site to about 1,000.

Due to the congestion in the present female hostel block on site, one of the male hostel blocks has been converted into a female block. This is a better situation than the existing case where female students are accommodated in the existing kitchen/dining hall on site.

Two dining halls have been proposed to cater for the feeding of the students. They have been located at extreme ends of the site due to the smell that comes from them as well as to make vehicular service routes as short as possible without infringing on the pedestrian movement on site.

A student's Union building was provided to cover the students activities as well as bring the Administration and students on a common platform. This will help to bridge the

communication gap existing between the authorities and students. Office spaces have been provided for student union officials as well as Student Affairs Officials. Similarly, an Auditorium for multipurpose use has also been situated in the students union building. If can serve as a venue for seminars, public lectures as well as film - shows. This facility will also serve as a common ground for the students and the society to come together.

An outdoor recreation space for relaxation outside the hostel blocks was provided to further enhance social contact between students in various hostel blocks. Adequate sitting facilities were provided for in the out-door area as well as along pedestrian routes.

DESIGN DATA

Design - Module	-	3.20m c/c.
Site Topography	-	Terrain is flat, less than 4% No ground - water. Normal excavation method to be used in construction of foundations. Since soil is without a very hard bedrock but it is capable of resisting the load of the structures.
Foundations	-	Continous footing in reinforced concrete.
Walls	-	Solid blockwork in concrete with cement screed finish, or Light-weight partitions as the case may be.
Flooring	-	Reinforced concrete flooring. Floor finish to be terrazzo in toilets, bedrooms and corridors resilent flooring in gymnasion.
Sewage System	-	Execution of the sewage system piping and disposal for wastes and rain-water to be around premises of building structure.

Electrical Installations:

Principal Distribution Method:

Installation from transformer station on to principal fuse distribution in the buildings. Ascending mains to be installed from fuse distribution boards which are to be installed on each floor.

Lighting:

2/40 watts for study/living areas of bedroom space. 1/40 watts for the sleeping zone. Adequate lighting for corridors and staircases. Switches and plugs to be fitted on wall surfaces with cables concealed.

Floor Areas:

Bedrooms	-	21.75	sq.m.
Living-room	-	31.50	sq.m.
Recreation-room	-	68.25	sq.m.
Tea/Kitchen Dining	-	45.5	sq.m.
Study	-	45.5	sq.m.
Administration	-	103.25	sq.m.
Common-room	-	110	sq.m.
Dining Area	-	250	sq.m.
Kitchen (Prel. Prep)	-	35	sq.m.
Main Kitchen	-	97.5	sq.m.
Cold Store/Cutting	-	20.5	sq.m.
Dry Store	-	35	sq.m.
Changing rooms/Toilets		35	sq.m.
Gymnasium	-	475	sq.m.

B I B L I O G R A P H Y

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Building Types - J.H. Callender

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