

INDIA

DISTRICT INSTITUTES OF EDUCATION AND TRAINING

PLANS AND GUIDELINES FOR CONSTRUCTION

NIEPA DC



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Developed by-

THE SCHOOL OF PLANNING AND ARCHITECTURE : NEW DELHI
(Deemed to be a University)

For-

THE MINISTRY OF HUMAN RESOURCE DEVELOPMENT,
(Department of Education), Govt. of India.

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INTRODUCTION

The Government of India has been implementing, since 1987-88, a Centrally Sponsored Scheme of establishing District Institutes of Education and Training (DIETs) which have the following main functions:-

- (i) Pre-service training of elementary teachers
- (ii) In-service training of elementary teachers
- (iii) Training of staff of Adult and Non Formal Education
- (iv) Orientation of community leaders, youth, women and other educational activists
- (v) Extension, resource and academic support to elementary and adult education systems in the district including in areas like Educational Technology and Computers
- (vi) Action Research and Innovation.

In districts where Government elementary teacher education institutions already exist, the most suitable one among them is to be selected for upgradation as a DIET. In districts where no such Government institution is available, a DIET is to be set up de novo. For the sake of convenience, the above two categories are referred to as 'upgradation' and 'new' projects.

2. The Ministry of Human Resource Development (Department of Education) had circulated to State Governments norms of Central assistance and detailed physical norms for the building of a 'new' DIET vide its d.o. letter No.F.2-38/87-TE.I

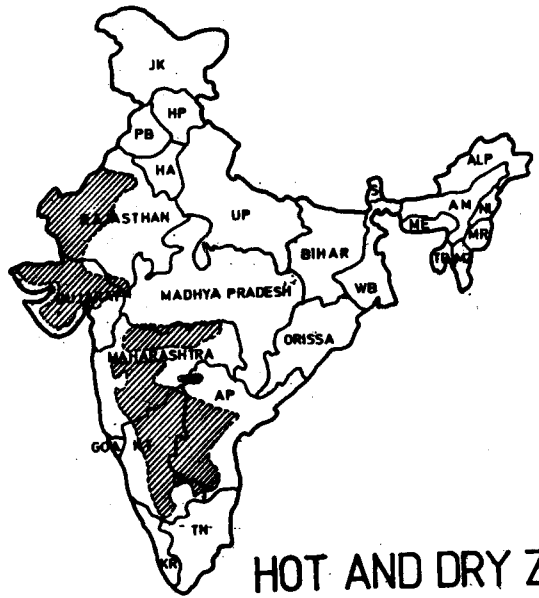
dated 22.2.89. The average norms of Central Assistance for Civil Works for 'upgradation' and 'new' projects were laid down as Rs.40 lakhs and Rs.64 lakhs respectively. The detailed physical norms circulated with the above d.o. letter have since been incorporated, with slight modifications, in the revised Guidelines for DIETs circulated to States vide Ministry's d.o. letter No.F.2-38/87-TE.I dated 28.11.89. Relevant portions from Chapters 2,4,5, & 6 of the Guidelines, and its full Annex 13, which all deal with Civil Works, may be seen in Appendices I & II respectively.

3. The Ministry of Human Resource Development (Department of Education) had assigned to the School of Planning and Architecture, the task of preparing the following :-

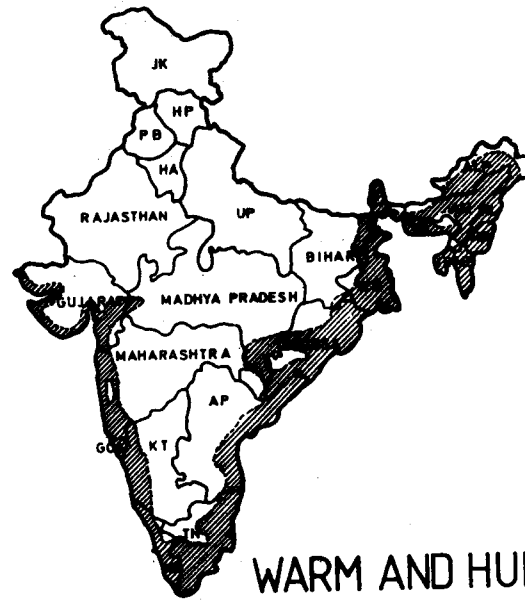
- (i) Guidelines for functionally efficient, economical and yet aesthetically pleasing construction of DIET buildings; and
- (ii) A few illustrative building layout plans for the total Institute Building (to the extent of Priority I Items in Annex 13 of the Guidelines), and a typical 75 seater hostel building of a DIET, so as to translate the norms given in Annex 13 of the Guidelines and the various suggestions for economical and aesthetic construction, into concrete building plans.

This booklet is the outcome of the above assignment, and consists of two parts viz. (i) General guidelines for efficiency, economy, etc., and (ii) Illustrative layout plans.

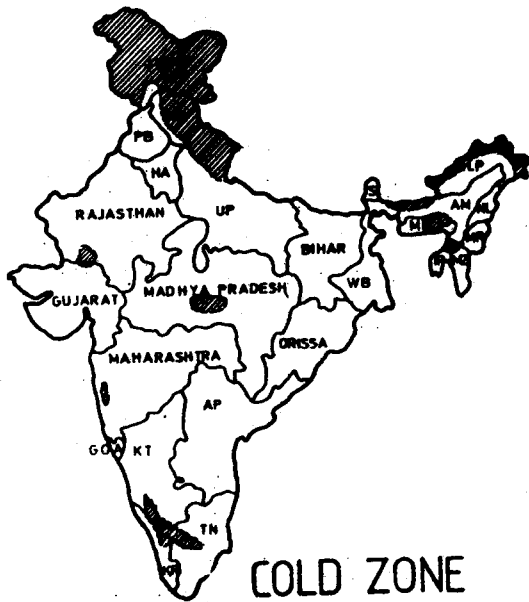
4. The illustrative layout plans for the Institute building are applicable, in the first instance, to cases where a completely new Institute building is to be constructed. However, their basic features and concepts would be useful in 'upgradation' cases as well. Different sets of plans for Institute and Hostel buildings have been prepared for the following four types of climatic zones:-



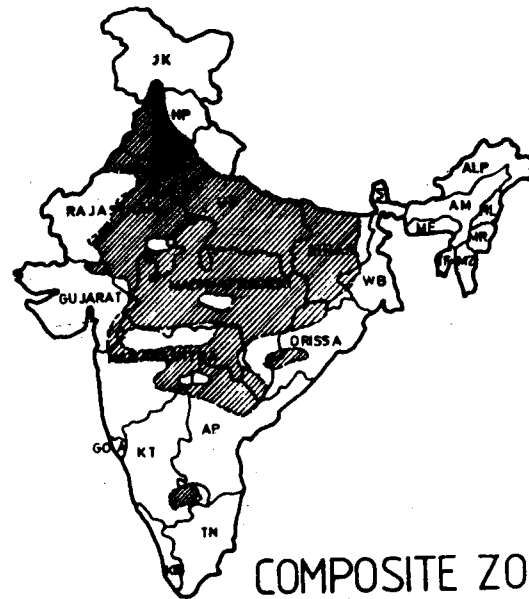
HOT AND DRY ZONE



WARM AND HUMID ZONE



COLD ZONE



COMPOSITE ZONE

Name of the Zone	Characteristics	Examples
1. Hot and Dry	<ol style="list-style-type: none"> 1. Mean Monthly Temp. >30 C 2. Relative Humidity < 50% 3. Diurnal variation of temp. is high 	Western Rajasthan, Large parts of Gujarat, Parts of Maharashtra, Eastern Karnataka & Western Andhra Pradesh.
2. Warm and Humid	<ol style="list-style-type: none"> 1. Mean monthly temp. <30 C 2. Relative Humidity > 55% 3. Movement of Breeze creates conditions of comfort 4. Severe cold conditions are rare. 	Coastal belt, large parts of the North Eastern Region.
3. Cold	<ol style="list-style-type: none"> 1. Mean monthly temp. < 25 C 2. Relative Humidity <ol style="list-style-type: none"> i. Cold & Sunny <55% ii. Cold & Cloudy >55% 3. Some places are cold and sunny while others are cold and wet 4. Low to heavy snow fall in most areas 5. Even summers are relatively cool during mornings, late evenings and nights. 	Kashmir, Ladakh, parts of Jammu region, large parts of Himachal Pradesh, Uttarakhand, Himalayan regions of the North East, Upper reaches of the Nilgiris and the Western Ghats. Mount Abu in Rajasthan, Pachmarhi in Madhya Pradesh, and Shillong in Meghalaya.
4. Composite	More than six months in a year do not have climate characteristic of hot and dry, warm and humid or cold zones.	Punjab, Haryana, large parts of UP, Madhya Pradesh, Bihar, Eastern Rajasthan, parts of Maharashtra and Northern parts of Andhra Pradesh.

PART I: GUIDELINES

CHAPTER I

GENERAL ARCHITECTURAL AND PLANNING CONSIDERATIONS

The severe constraints of limited finance renders designing of efficient, and aesthetically pleasing DIET complexes a task full of challenges. This challenge can be met, only with the self imposition of strict discipline by the designer himself, at all stages of his work, be it deciding on broad concepts or working out details or finalising specifications.

A Compact built environment should be strived for treating land as a 'limited resource'. Tendency to 'overplay' the various concepts, like 'zoning', 'articulation' and 'buffers' between noncompatible usages, shall be firmly curbed. Since the development of the complex would normally take place in phases, layout plans should be broadly finalised in the beginning. This is necessary to avoid ad-hoc constructions. Expenditure on site development can be considerably controlled if the overall layout plan is designed keeping the above objectives in mind.

DIETs, do not pose a particularly complex architectural design problem. The relationships of various functional spaces with one another are fairly simple, and the various buildings are quite small. Nonetheless there is the need to fully understand and arrive at correct zoning and relationships, so that a reasonably rational building plan and form can be evolved. The need to keep movement of the users to a minimum, to isolate noise producing areas (like performing arts), to group similar usages wherever possible is obvious. Since most of the resource areas/facilities would need to be used both by pre-service as well as other trainees, a division right in the middle is not possible.

Casual, unplanned & informal inter-action amongst the students forms an important and integral part of learning process and provides beneficial 'exposure'. Provision of generous indoor areas - stairs, corridors, foyers, and widened up verandahs - which in educational institutes are traditionally provided to serve as informal gathering places cannot be done here. Open terraces and outdoor spaces around the buildings, if suitably positioned & modified, can substitute indoor spaces at much lower cost. Lawns, paths, trees, plants, bushes, hedges and steps alongwith other landscape furniture objects form a rich resource for any designer. The climate for most part of the academic year in all the climatic zones of the country except the cold and wet zones permits the use of the outdoor spaces for such usages without discomfort and inconvenience.

The task of designing a DIET campus has to be viewed as a part of the government's continuous effort to provide physical infrastructure for education and research for teacher's training. The contribution that the educationists and informed administrators can make in this area, by positive participation and association with the designers at various stages cannot be over-emphasised. Pleasant and functional outdoor environment, can be developed with students, faculty and staff involvement and participation.

1.1 CAMPUS LAYOUT DESIGN

- (i) Proposed buildings shall be located in such a manner that the natural drainage of the site is not interfered with and the site can be drained out without the need to

build a complex and costly drainage system, avoiding low lying areas is indicated;

- (ii) The system of roads, streets and paths shall be evolved in a manner that the length of roads is kept to the minimum. Unnecessary movement of traffic unrelated to a particular zone should be avoided in that area;
- (iii) Buildings shall be so located as would leave large contiguous areas available for lawns, recreation and playfields and for practical training in horticulture and agriculture;
- (iv) The entry points to the campus shall be kept to the minimum;
- (v) Privacy and isolation of various zones - i.e. the institutional, the hostels, and the residential shall be achieved;
- (vi) The girls hostel will need relatively greater privacy than the men's hostel;
- (vii) Existing trees and land features like mounds, ravines etc. shall not be disturbed as far as possible.

1.2 INSTITUTE DESIGN

A two storeyed institute building is preferable to a single storeyed one, as it shall result in efficient use of land, optimum use of nominal foundations and shall ensure substantial visual image of the Institute. While designing, 'user' structure particular to DIETs needs to be kept in mind. The spatial organisation shall respect and cater to the needs of the youngsters and the relatively mature inservice trainees; the male

and the female groups.

Most of the spaces indicated in Annex 13 of the Guidelines (Appendix 2 of this document) are to be used by all user groups. An articulated plan form with different blocks for distinct user groups cannot be evolved. Effort shall however be made to achieve possibility of rational control by the Principal, relatively quiet areas for teaching and studying activities, and minimum movement of users within the building.

Work experience room and the room for performing arts may be placed in separate structures/blocks. These activities can spill over to adjacent outdoor spaces.

The building design shall be responsive to the climatic demands, rendering the rooms thermally as comfortable as possible.

The plans shall also take into account possible future additions to the Institute building at a later date - eg of facilities like auditorium, canteen, girls common room and the like. Later constructions should be possible with least or no dislocation of the functioning of the already existing building/s.

The sizes and proportions of rooms shall be so evolved as to serve various functions, at the same time keeping the variations to minimum so that simple structural systems could be adopted.

The corridors should be five feet wide for singly loaded corridor plan and six feet wide for doubly loaded corridor plan. A single staircase could be sufficient, if rationally located. Staircases need not provide access to roof; this would reduce misuse and mishaps.

Toilets shall be discreetly located, so that the incidence of smell from the toilets to adjoining areas is avoided. Good ventilation and proper placement of windows is important. It may be considered whether the same toilets could also serve from outside.

Analytical process and synthesising process of design shall continue simultaneously to achieve a good 'fit' between function, space and structure. It may be necessary to revert from synthesising to the analytical design process, and vice versa, number of times, till a suitable design solution is achieved.

1.3 HOSTEL DESIGN

Accommodation for one hundred fifty (150) students has to be provided in hostels. Two separate two-storeyed hostel buildings complete with common facilities like office, common room and dining hall have to be provided, both for male and female students.

Hostel design shall aim at achieving a 'building' which provides a 'residential' environment to the inmates. Features like privacy and security shall be central to the design. Girls hostel shall need special care in this respect. Inward looking hostel, with rooms arranged around a central court provide good plan form. Different climatic conditions however affect the final design.

Two-seater rooms are stipulated. The room shall offer absolute or near equal parity for both the inmates. The rooms shall also be adequate in terms of thermal comfort and pleasant view.

Office shall be so located as would provide efficient control, discouraging unauthorised entry into the hostel. The common room and dining room

need to be provided in close proximity. The common room shall be so designed, as would facilitate use of adjoining outdoor spaces for spill over activities. Outdoor sitout terraces could add to the livability of a common room on an upper floor.

The kitchen's untidy activities need to be confined within a closed court thus ensuring that the hostel at no point is defaced by messy functions. The toilets shall be placed for convenience, economy and suppression of foul smells. A Single staircase would be sufficient. Corridors may be four feet wide when singly loaded and five feet wide when doubly loaded.

Dimensions of students' room and common areas should be such as would be logically built using load bearing walls. In the case of students' rooms, load bearing cross walls, though may mean a slight increase in built area, are likely to prove simpler and cheaper.

Hostels in mountaineous/cold regions shall cost more to build. Some savings can be affected by providing accomodation for students in four-seated rooms, using two-tier cots.

1.4 AESTHETICS

The aesthetics of architecture built with public funds is more important than it is normally considered. At the very outset it must be mentioned that here we are not concerned with styles, fashions or even embellishments. The paucity of public funds dictates that the buildings shall cost as little as possible and still we have buildings that are aesthetically satisfying, contextually appropriate and are in sympathy with the overall physical and socio-cultural setting of a particular situation.

It is obvious that the architect shall have to make ample use of his creative skills, technical knowledge and mature judgement. The beauty shall result from basically sound and satisfactory geometrical forms, proportions and natural richness of materials. 'Frills', 'embellishments', and 'features' designed especially for aesthetic effect have no place in the designing of DIET buildings.

Aesthetics in architecture is not just 'skin deep'. In the interiors, it emanates from the character of the spatial environment, spaciousness and orderliness. No building exists in a vacuum'. A well laid out and landscaped open space, surrounding a building, determines its overall aesthetics. Even, matter of fact, bare and utilitarian structures in a good setting can be aesthetically pleasant.

CHAPTER 2

ON EFFECTING ECONOMIES

Constructing low cost buildings, somehow tends to remain as a mere concept. In practice the cost of construction continues to escalate. Savings can be meaningful, if meticulous efforts are made to effect savings in all departments of building ie. programming, spatial designing, selection of structural system, decision about specifications and the actual construction and site management. All the loopholes are to be plugged effectively. Recourse to one or two single methods to save costs shall not be sufficient. Economical buildings do not also mean that the specifications and standards of construction are lowered.

Possible ways to achieve economy are discussed in the following paragraphs.

- (i) If we can do with lesser built area, without adversely affecting the operational and functional aspects, we have taken the first essential step towards achieving economy.
- (ii) Spaces should be so designed as to facilitate multiple uses, so that with the help of rational time schedule for use/occupancy, space needs can be reduced.
- (iii) Basic standards should be critically scrutinised to see whether reduction in space requirements can be made without affecting the proper functioning and utility of the room.
- (iv) The dimensions and design of furniture determines the size of spaces. Furniture dimensions and design should be examined

with a view to cutting down the size of rooms.

- (v) Circulation area spaces should be kept to the minimum. Efforts should be made so that the circulation area is less than 20% of the carpet area of the usable rooms.
- (vi) It is possible to relate different blocks/buildings spatially, without having connecting corridors.

2.1 SPATIAL DESIGN

Simple, straightforward and logically worked out design, synchronising spatial design with structural system, selected for its 'FIT' and 'appropriateness' to the spatial design shall be aimed at. The spatial design shall be evolved with a view to achieve economy in 'circulation areas' and rational juxtaposition of space and function.

2.2 SELECTION OF STRUCTURAL SYSTEM

The three constituents of a structural system are discussed in the following paragraphs:-

- (i) Foundations

While selecting site for the DIET campus, care should be taken so that difficult and problematic sites are not selected. Lowlying sites, too steep sites, & sites with weak soils would mean high expenditure on foundations.

It is undoubtedly a good practice to have

information about the practice prevalent in the local area. To achieve economy, necessary soil tests must be carried out.

Deciding about foundations becomes difficult in regions having expansive soils (black cotton soil), and generally weak soils. In expansive black cotton soils and other weak soils newer methods of foundations like 'under reamed piles' or 'sand filled/granule filled piles' could be considered in preference to traditional foundations that are cumbersome to build, expensive and often prone to failure.

(ii) Vertical Support Systems

The three commonly used vertical support systems are (i) Load bearing walls, (ii) Load bearing RC frames and infill panels, and (iii) Composite Walls, i.e. combination of (i) and (ii) above. For the Institute building, short and medium span structures are suitable for office, faculty rooms and toilets etc. short spans are suited, while the teaching areas medium span structures. Load bearing walls made of locally available brick, stone are recommended.

Nuances of architectural design greatly influence choices such as structural material, bay spacings and spans. For the Institute building both medium spans and short span structures are to be used. For the hostel buildings, repetitive rooms need bearing wall structures while common areas require sort span to medium span structures. Bearing walls can be either simple walls of appropriate thickness or nominally thick walls strengthened at intervals with buttresses or piers/pilasters. Nominal wall thickness on the exterior profile are to be adhered to for reasons of thermal comfort and fire safety and bye-laws requirements.

Buildings with framed structures are generally preferred and Cast-in-situ technique is usually followed. The structural system can produce economies, if the bays are about 10 ft. x 20 ft., so that the beams occur at every 10 feet and the longest span is limited to 20 feet.

In situations where sloping roofs are a must and AC sheets/tin sheets etc. are to be used, the framing can be of tubular steel or of welded steel angles.

(iii) Horizontal Support Systems

Maximum savings can be effected if the cost of roof can be reduced. Cast-in-situ RCC is the most preferred construction technology for roofs. Economies can be achieved if the roof slabs are designed as two-way slabs, and optimum use is made of nominal 100 mm thick concrete by having shorter span of about 10 feet. Uniformity of bay spacings, spans and repetitive nature of the structural system can result in considerable economies.

2.3 SPECIFICATIONS

Adoption of austere but sound building specifications is essential for arriving at low cost construction. The use of 'rich' and expensive materials is to be considered a taboo. Some of the finishing materials are used, since these add to the 'status' of the building. In the building trade, there is an unhealthy trend whereby the use of expensive materials is being encouraged, while the art and practice of good workmanship is being allowed to degenerate. Locally available building skills can be used to advantage besides encouraging the use of locally available materials. The areas in which this could be practised is limited, but nonetheless it has a potential for use. For wet areas of a building,

the finishing material needs to be selected, keeping in mind the maintenance aspect.

2.4 LOW-COST TECHNOLOGIES

Significant work has been done in the field of developing and testing new construction technologies which, if used, can lead to savings in cost, besides reducing the quantities of steel and cement, the two costly and scarce materials. However there appears to be a definitive apathy for volitional adoption of such technologies in routine course by architects and engineers. For these technologies to be used, it ought to be a specially sponsored project. No initiative is thus being taken to usher in the required change. Understandably there is no room for 'modular' construction employing large scale building components, when the size of the single project is too small. However, low-cost technologies have a role to play and in this it is the public architecture that has to take the lead.

Some of the technologies that may find application in the DIET projects are given below-

(1) Foundations

- Bored compaction piles in weak soils
- Under reamed piles in expansive and weak soils

(ii) Walls

- Stone Masonry Block in mountaineous regions

(iii) Roofs

- Precast RC Channel Units in hostel and other short spanned spaces

- Precast RC planks and joists in hostels and short span spaces
- Thin RC Ribbed Slab
- Precast doubly curved cement concrete panels
- Brick jack arches
- Ferro concrete roof shells
- Precast concrete tiles for sloping roofs

(iv) Plumbing

- Single stack system
- Centralised services
- Minimum length of sewer lines
- Rationalised plumbing to achieve reduced lengths
- Surface plumbing, easy for detection of faults and repairs

(v) Electrification

- Conservative provision of electricity points
- Surface wiring
- Savings through achieving maximum of short points rather than medium and long points

2.5 PROJECT EXECUTION

Besides making use of imaginative and creative spatial designing, rationalisation of structural system and use of austere and appropriate specifications, substantial economy can be achieved through the use of project management techniques and imaginative and careful contract management. Some of the points that could be considered are-

- (i) The entire working drawings, detailed architectural drawings and structural

drawings and specifications should be completed before putting the work to tender so that the Contractor's rates are based on full information and the element of risk due to missing information is reduced;

- (ii) For 'details' that suggest saving in material/labour the part of the advantage should come back to the client. For example, if window shutters use narrow rails or stiles, there is saving in timber. Similarly use of precast lintels would be cheaper than the Cast-in-situ lintels;
- (iii) The possibility of encouragement of worker's cooperative shall be tried, so that middle men's profits are eliminated;
- (iv) One factor that plays havoc with building costs is the enormous difference between 'stipulated' time for completion & 'actual' time for construction. The time required for completion should be realistically worked out, taking into account factors like inclement and bad weather, interruptions in regular supply of cement and steel and so on. Through tight control over time factor, contractors can be persuaded to quote more advantageous offers;
- (v) Evolution of an overall simple construction which does away with flimsy details can also bring down costs. As this shall lead to speedy construction.

PART II: DESIGNS

INTRODUCTION

For the four climatic zones referred to earlier, illustrative designs have been worked out for the Institute and Hostel Buildings, and are given in the following pages. In working out these designs, care has been taken to conform, as far as possible, to the area norms given in Annex 13 of the Guidelines for DIETs circulated by the Ministry. However, for various reasons, some departures from these norms were inevitable. The tables on the following pages give a comparative picture of the area norms for individual spaces as contained in the Ministry Guidelines, and as provided in the illustrative designs for the four climatic zones.

COMPARATIVE STATEMENT OF AREAS (i) AS PROVIDED IN THE DIET GUIDELINES, AND
(ii) WORKED OUT IN ILLUSTRATIVE DESIGNS THAT FOLLOW

I DIET INSTITUTE BUILDING

S.No. Space		Areas (in sq.ft.)										
		As per guidelines			As per Illustrative Designs							
				HOT & DRY ZONE		WARM & HUMID ZONE		COLD ZONE		COMPOSITE ZONE		
		Carpet Area per Room	Nos.	Total Carpet Area	Carpet Area Per Room	Total Carpet Area	Carpet Area Per Room	Total Carpet Area	Carpet Area Per Room	Total Carpet Area	Carpet Area Per Room	Total Carpet Area
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Class Rooms	500	4	2000	470.0	1880.0	470.0	1880.0	470.0	1880.0	470.0	1880.0
2.	Seminar Rooms	400	1	400	378.0	378.0	378.0	378.0	370.0	370.0	378.0	378.0
3.	Physical Science Lab incl store	700	1	1500	1525.0	1525.0	1562.0	1562.0	1476.0	1476.0	1525.0	1525.0
	Life Science Lab incl store	700	1									
	Cabin for One Faculty Member	100	1									
4.	Computer Lab incl space for faculty member	300	1	300	306.0	306.0	282.0	282.0	282.0	282.0	306.0	306.0
5.	ET display cum store+space for 2 faculty members	250	1	250	306.0	306.0	274.0	274.0	274.0	274.0	306.0	306.0
6.	Room for education of handi-capped Incl. space for faculty member	250	1	250	250.0	250.0	250.0	250.0	236.0	236.0	250.0	250.0
7.	Visual Arts and Crafts Room incl Store and Space for Faculty members	400	1	400	378.0	378.0	378.0	378.0	378.0	378.0	378.0	378.0

1	2	3	4	5	6	7	8	9	10	11	12	13
8.	Performing Arts Room incl store	300	1	300	274.0	274.0	275.0	275.0	313.0	313.0	274.0	274.0
9.	Shed cum Store for work experience activities	600	1	600	606.0	606.0	649.0	649.0	681.0	681.0	597.0	597.0
10.	Store Room cum Cabin for Lecturer in Physical Education	250	1	250	250.0	250.0	270.0	270.0	236.0	236.0	250.0	250.0
11.	Principal's Room with PA's Cabin	300	1	300	305.0	305.0	318.0	318.0	313.0	313.0	324.0	324.0
12.	Room for Vice Principal/ Sr. Lect. Incharge D.P.U.	150	1	150	144.0	144.0	155.0	155.0	141.0	141.0	153.0	153.0
13.	Cabins for faculty members (For 2)	125	9	1125	250.0	1000.0	235.0	940.0	236x2	968.0	243.0	972.0
14.	Hall for Administrative Staff	500	1	500	510.0	510.0	563.0	563.0	248x2	467.0	490.0	490.0
15.	Library (incl. reading area and Librarian's Cabin)	1000	1	1000	1140.0	1140.0	1075.0	1075.0	1087.0	1087.0	948.0	948.0
16.	General Store	225	1	225	231.0	231.0	210.0	210.0	193.0	193.0	185+92	277.0
17.	Toilets	225	2	450	100.0x4	400.0	96.0x4	384.0	110x4	440.0	212x2	424.0
Total Carpet Area (A)		-		10000	-	9883	-	9843	-	9735	-	9732
Circulation Areas (Corridors*, Foyer) including staircase and wall thickness (B)				3000 (30%)	-	3069 (31.05%)	-	3167.0 (32.17%)	-	3225 (33.12%)	-	3264.0 (33.54%)
TOTAL BUILT UP AREA (A+B)				13000	-	12952.0		13010.0	-	12960		12996.0

*Area of cantilevered single loaded corridors has been taken as 50% percent of the actual.

II. HOSTEL BUILDING

S.No. Space

Areas (in sq.ft.)

		Areas (in sq.ft.)									
		As per guidelines		As per Illustrative Designs							
		For 100 seater block		For 72 seater block		For 80 seater block		For 76 seater block		For 80 seater block	
				HOT & DRY ZONE		WARM & HUMID ZONE		COLD ZONE		COMPOSITE ZONE	
		Carpet Area Per Room	Total Carpet Area	Carpet Area Per Room	Total Carpet Area	Carpet Area Per Room	Total Carpet Area	Carpet Area Per Room	Total Carpet Area	Carpet Area Per Room	Total Carpet Area
1	2	3	4	5	6	7	8	9	10	11	12
1.	Double seated room	50x120	6000	36x108	3888	40x108	4320	28x108	3024	40x108	4320
2.	Toilets	2x400	800	4x150	600	4x150	600	5x180 3x185	900 555	3x200	600
3.	Dining Hall, Kitchen and Store	1000	1000	686	686	670	670	687	687	634	634
4.	Common Room	500	500	427	427	375	375	369	369	328	328
5.	Hostel Office-cum-Dispensary	150	150	138	138	144	144	138	138	162	162
6.	Hostel Store	200	200	105	105	144	144	122	122	146	146
TOTAL (A)		-	8650	-	5844	-	6253	-	5795	-	6190
Circulation Areas (Corridors*, Foyer) including staircase and wall thickness(B)		-	2600	-	1981	-	2657	-	2440	-	2540
TOTAL BUILT UP AREA (A+B)		-	11250	-	7825	-	8910	-	8235	-	8730
AVERAGE AREA PER INMATE		-	110	-	108.68	-	111.37	-	108.36	-	109.13

*Area of cantilevered single loaded corridors has been taken as 50% percent of the actual.

ILLUSTRATIVE DESIGNS FOR INSTITUTE AND HOSTEL BUILDINGS

3.1 HOT AND DRY ZONE

Institute Building

The Institute building for Hot and Dry climatic zones is a compact, two-storeyed inward looking structure. The open to sky court forms the central feature, providing sheltered and landscaped environment. The court can be used at various occasions for formal and informal gatherings.

The front block accomodates office, administrative and faculty rooms. The main entrance is provided axially. A single staircase located conveniently provides access to upper floor. Access to the other parts of the campus is possible through additional openings at NE and NW corners. The rear block accomodates laboratories on the ground floor and library on the first floor. For laboratories and library, North orientation ensures even, shadow-free lighting throughout the day.

The remaining two blocks, completing the square, accomodate rooms for teaching and research. The toilets are so located that their direct view from the main circulation area is avoided, yet are easily accessible. The incidence of smell is also avoided due to their location at the ends.

The two terraces at NE and NW corners would provide much needed additional space for casual inter-action during free hours.

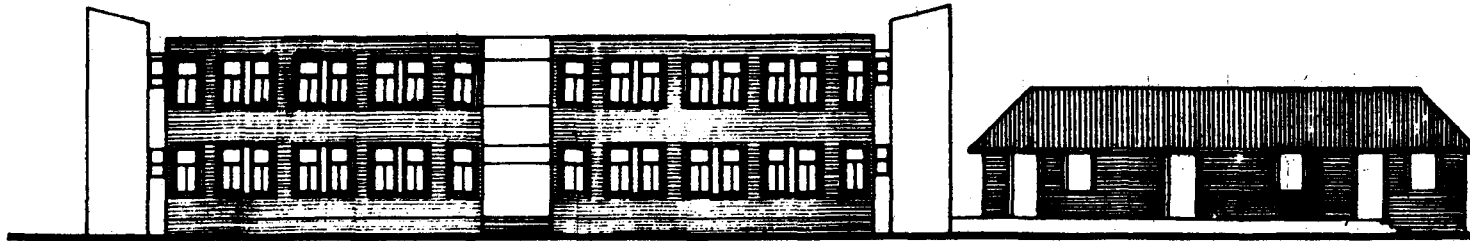
The entire building accomodation has two spans i.e. 20 feet and 13 feet and 9 inches and the bay spacing for R.C.C. beams is 10 feet centre to centre.

Hostel Building.

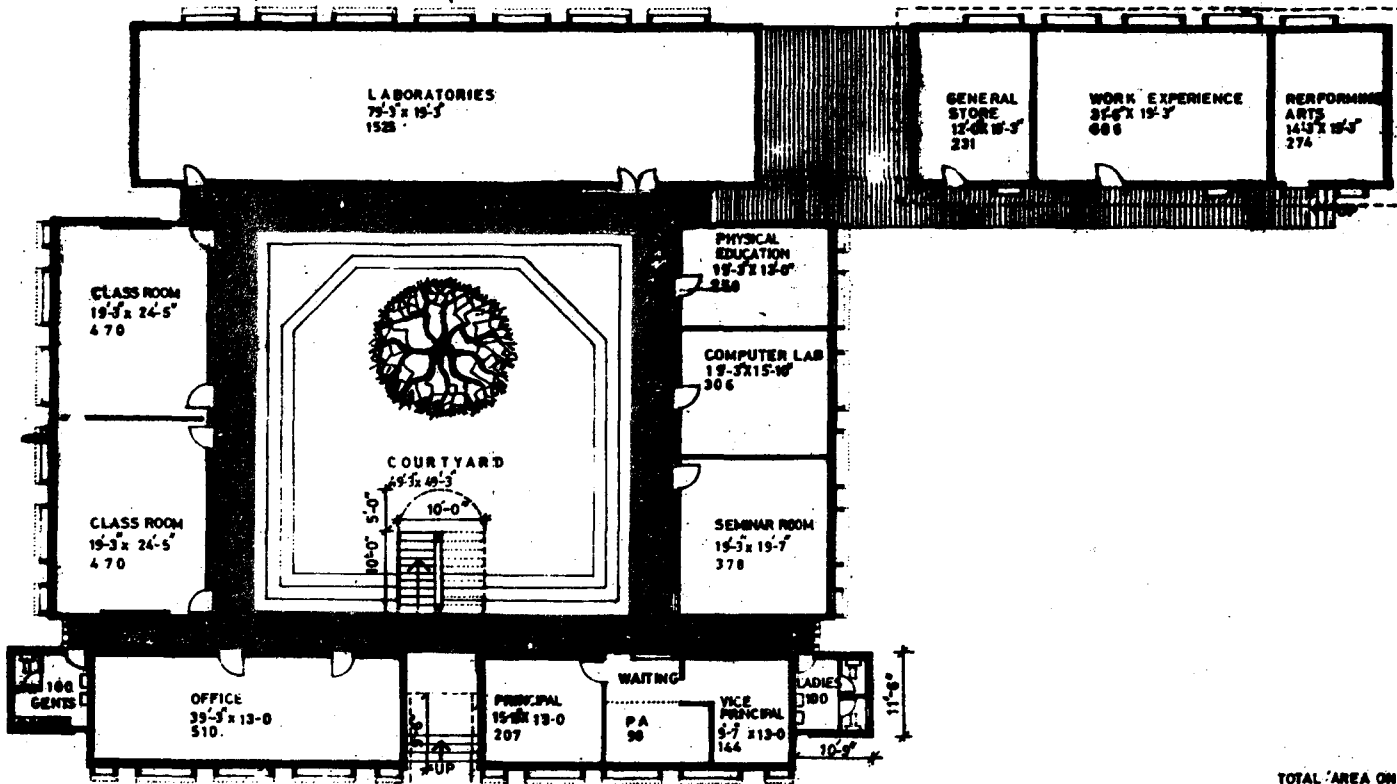
The design provides for seventy two inmates in thirty six, two-seater rooms. The building is inward looking, with most of the rooms provided in two blocks facing North and South, and a small number of rooms facing West. The West facing block has rooms only on the ground floor, the upper floor being a terrace.

The East side of the rectangle is partially closed by a two-storeyed block, which on ground floor contains the entry, office-cum-store, dining room and the kitchen. The first floor has the common room with an open terrace.

A single staircase placed just next to the entrance but within the rectangle provides vertical circulation.



FRONT ELEVATION



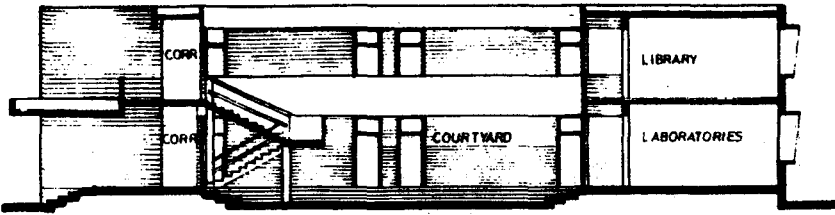
GROUND FLOOR PLAN



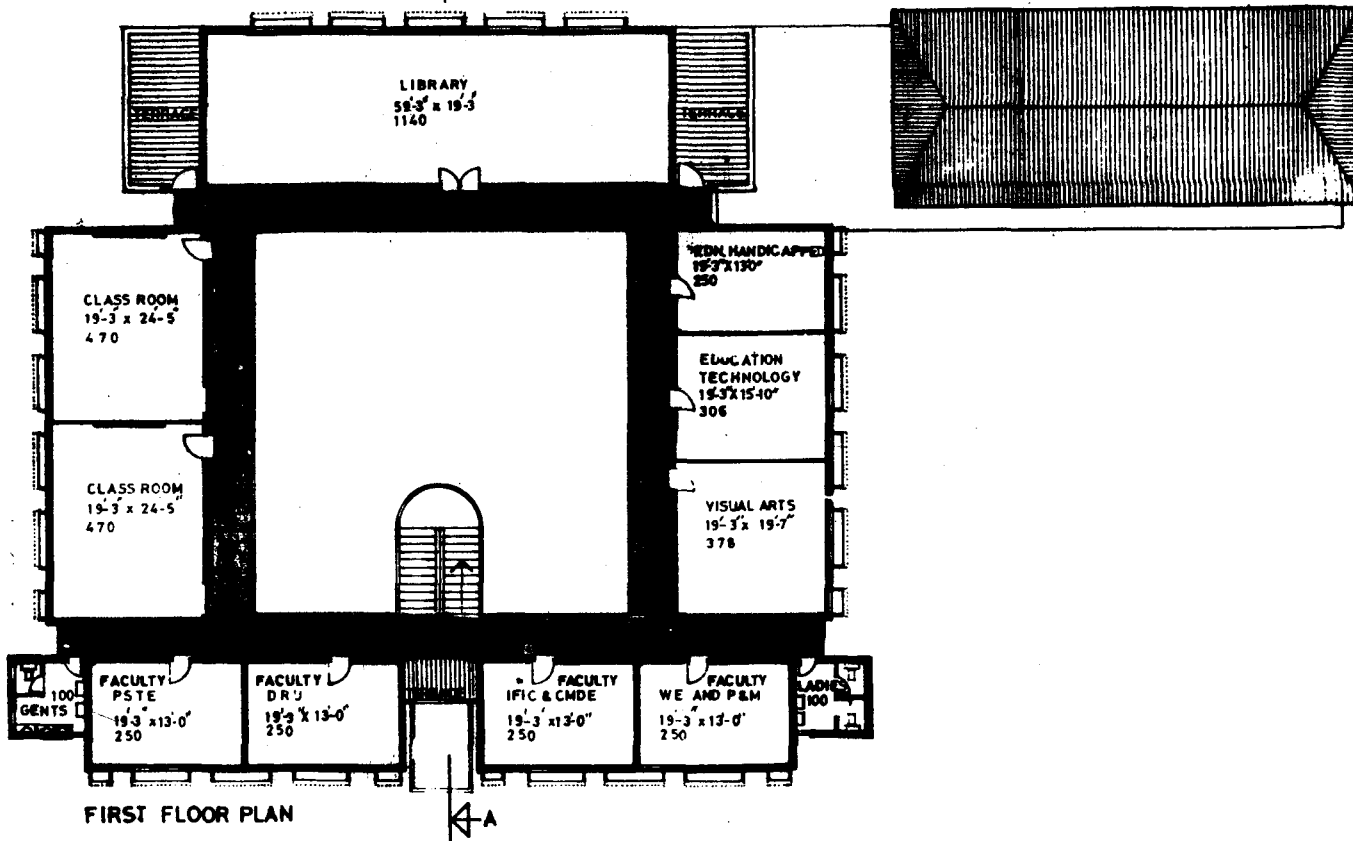
TOTAL AREA ON GROUND FL + FIRST FLOOR	12862.00	SQ FT
NET AREA ON GROUND FL + FIRST FLOOR	9883.00	SQ FT
CIRCULATION + WALLS + STAIRCASE	3000.00	SQ FT

DIET INSTITUTION BUILDING FOR HOT AND DRY ZONE





SECTION AT A-A



FIRST FLOOR PLAN

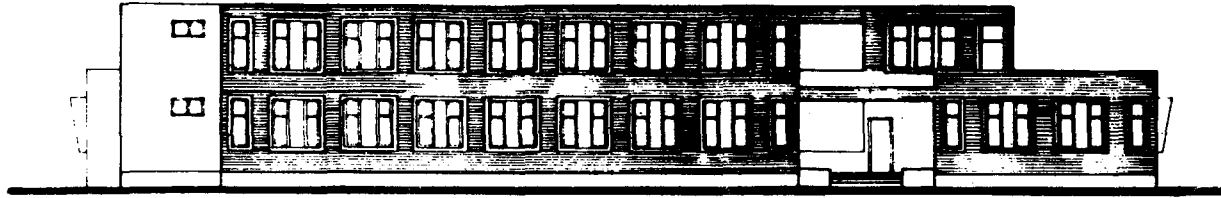


DIET INSTITUTION BUILDING FOR HOT AND DRY ZONE

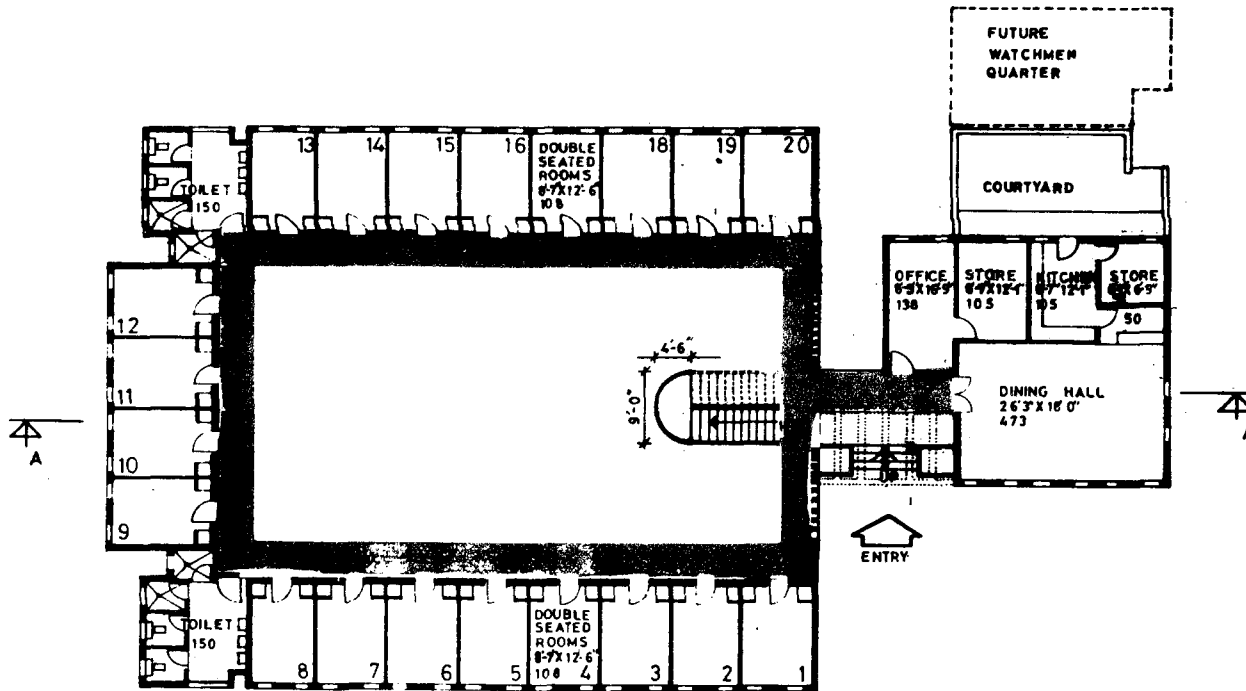


HOSTEL DESIGN - 1

36 DOUBLE SEATED ROOMS



FRONT ELEVATION



GROUND FLOOR PLAN

TOTAL AREA ON GROUND FL. FIRST FLOOR	7 825.00 SQ. FT.
NO. OF INMATES	72 INMATES
AVERAGE AREA PER INMATE	108.68 SQ. FT.

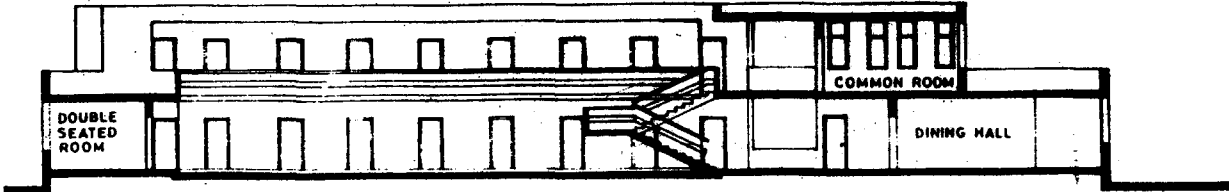
DIET HOSTEL BUILDING FOR HOT AND DRY ZONE

10FT 0 10 20FT

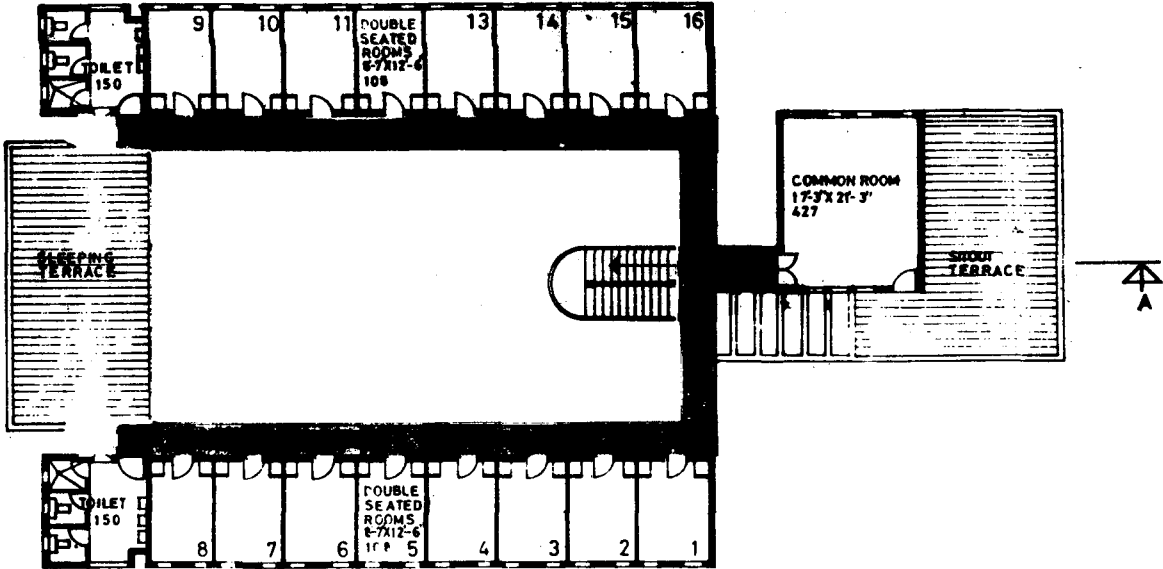


25

HOSTEL DESIGN - 1



SECTION AT A.A



FIRST FLOOR PLAN

DIET HOSTEL BUILDING FOR HOT AND DRY ZONE

10FT 0 10 20FT

26

3.2 WARM AND HUMID ZONE

Institute Building

The primary requirement for building in Warm and Humid (coastal) climates is that thermal comfort is ensured by designing for passage of desirable breeze through the rooms, over the human bodies. The building has thus taken a 'C' form with rooms provided along singly loaded corridors. The main/long block is placed perpendicular to the direction of the breeze, and the other two blocks are kept short. All the rooms have large windows on both the walls.

The entrance is provided axially and leads past the corridor to the staircase. The long block has science labs, classrooms and other teaching and academic rooms. The short blocks, on the ground floor, provide for work experience, performing arts and physical education activities. The faculty rooms are provided on the first floor. The Library is placed over the administrative rooms. Two open-to-sky terraces occur at the two ends of the long arm of the 'C'. The toilets are placed at the junctions of primary and secondary corridors, achieving convenient location, at the same time avoiding direct view of the toilets.

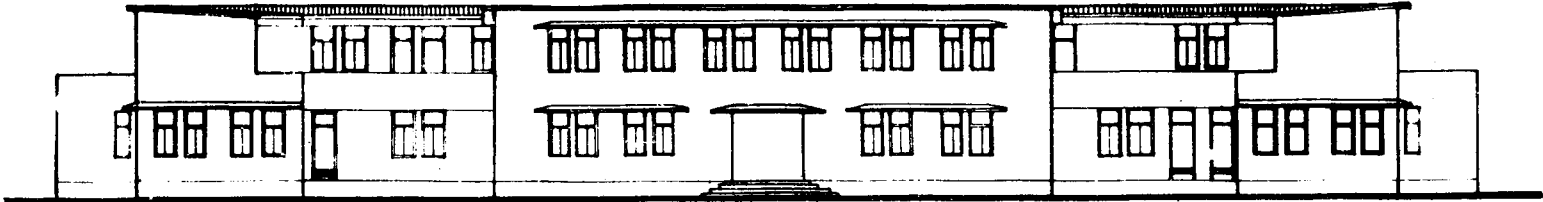
Hostel Building

Hostel accommodation for eighty inmates has been provided in forty double-seater rooms. The rooms are arranged along a singly loaded passage, taking the form of a 'C'. The entrance is provided axially in the middle with another two-storyed block projecting out, accommodating dining hall and kitchen, on the ground floor, and the common room on the first floor. The plan form is dictated by the need to ensure movement of breeze through the rooms. The long arm of the 'C' faces the wind direction at right angles.

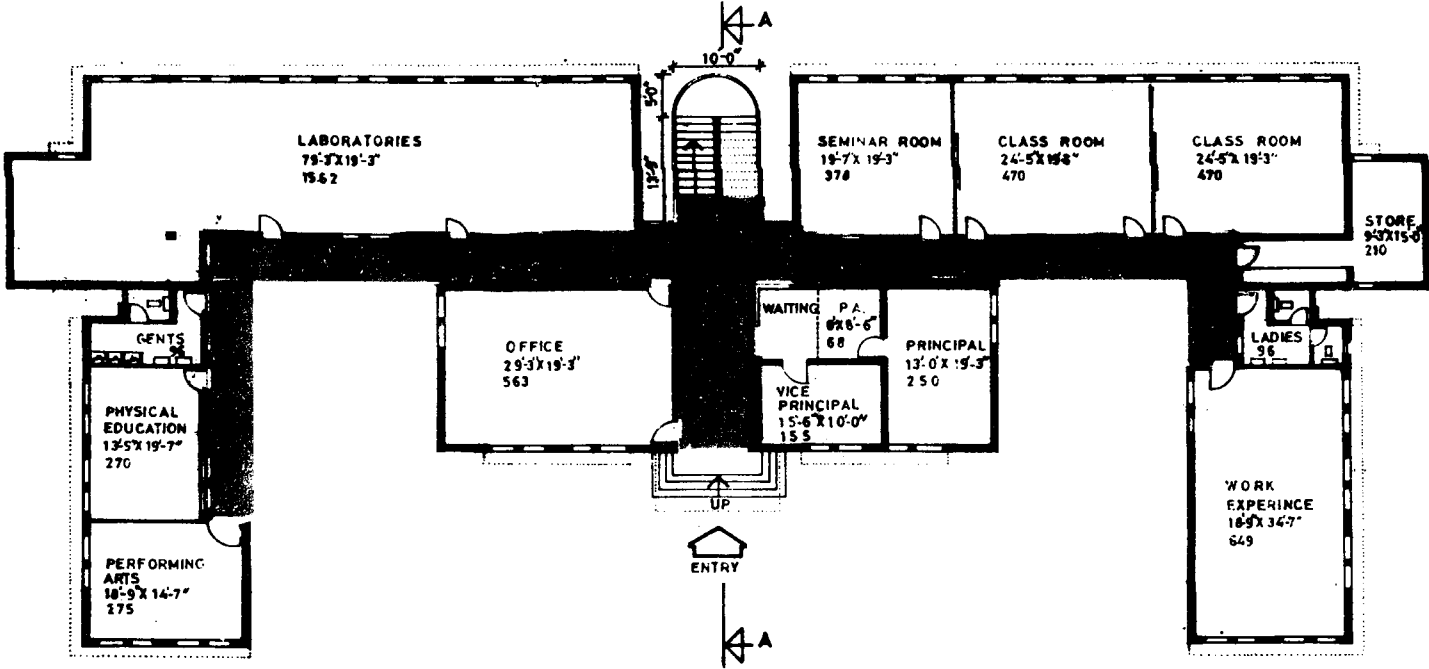
For the girls' hostel some provision needs to be made for a compound wall, or an effective hedge.

The corridor width is five feet wherever doubly loaded and four feet wherever singly loaded. The centrally placed staircase provides vertical circulation.

INSTITUTE DESIGN-2

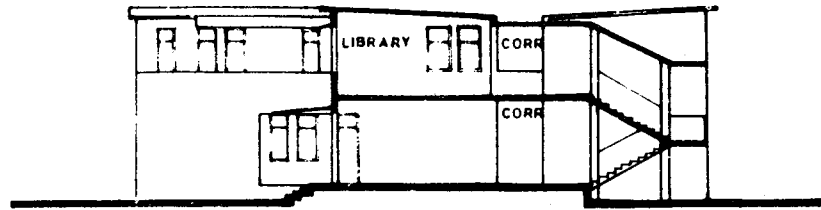


FRONT ELEVATION

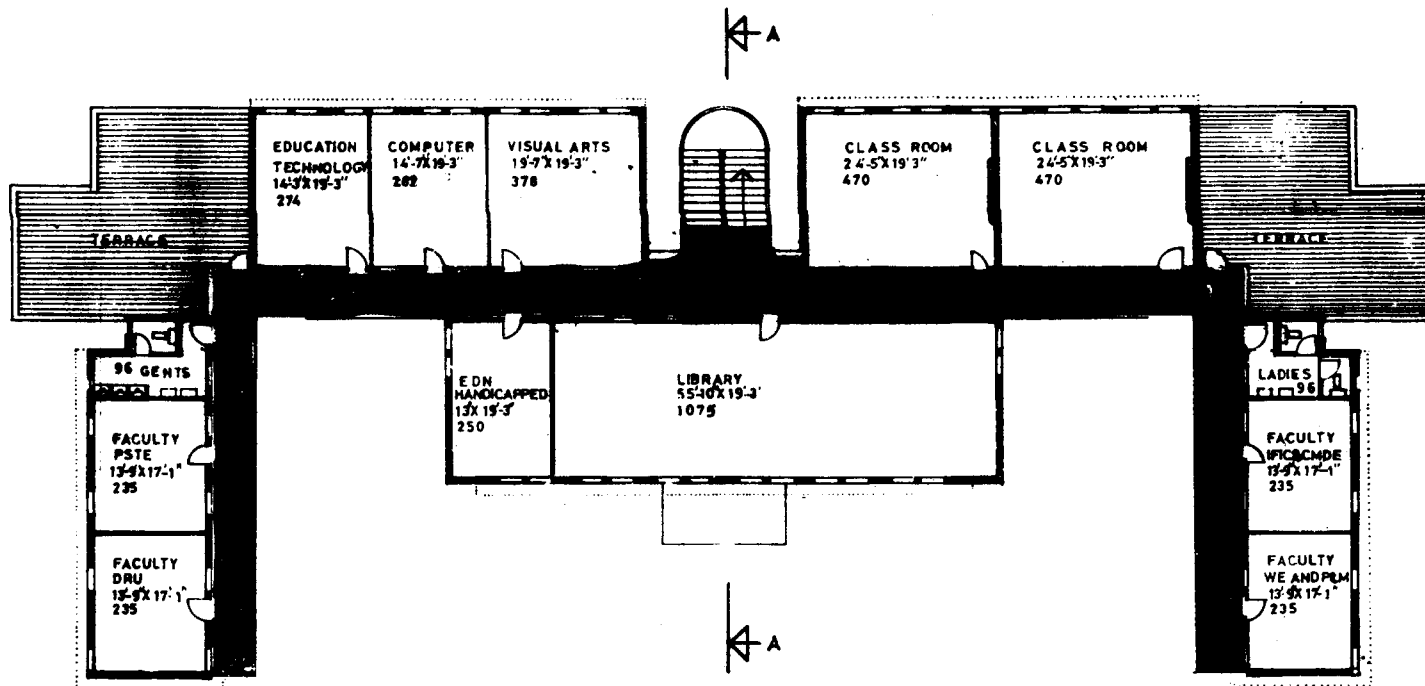


GROUND FLOOR PLAN

TOTAL AREA ON GROUND FL. + FIRST FLOOR	13010.00	SQ. FT.
NET AREA ON GROUND FL. + FIRST FLOOR	9843.00	SQ. FT.
CIRCULATION + WALLS + STAIRCASE	3167.00	SQ. FT.



SECTION AT AA



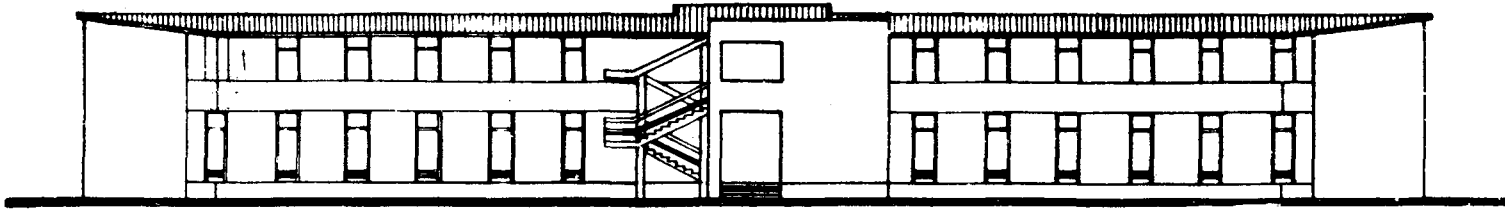
FIRST FLOOR PLAN

DIET INSTITUTION BUILDING FOR WARM AND HUMID ZONE

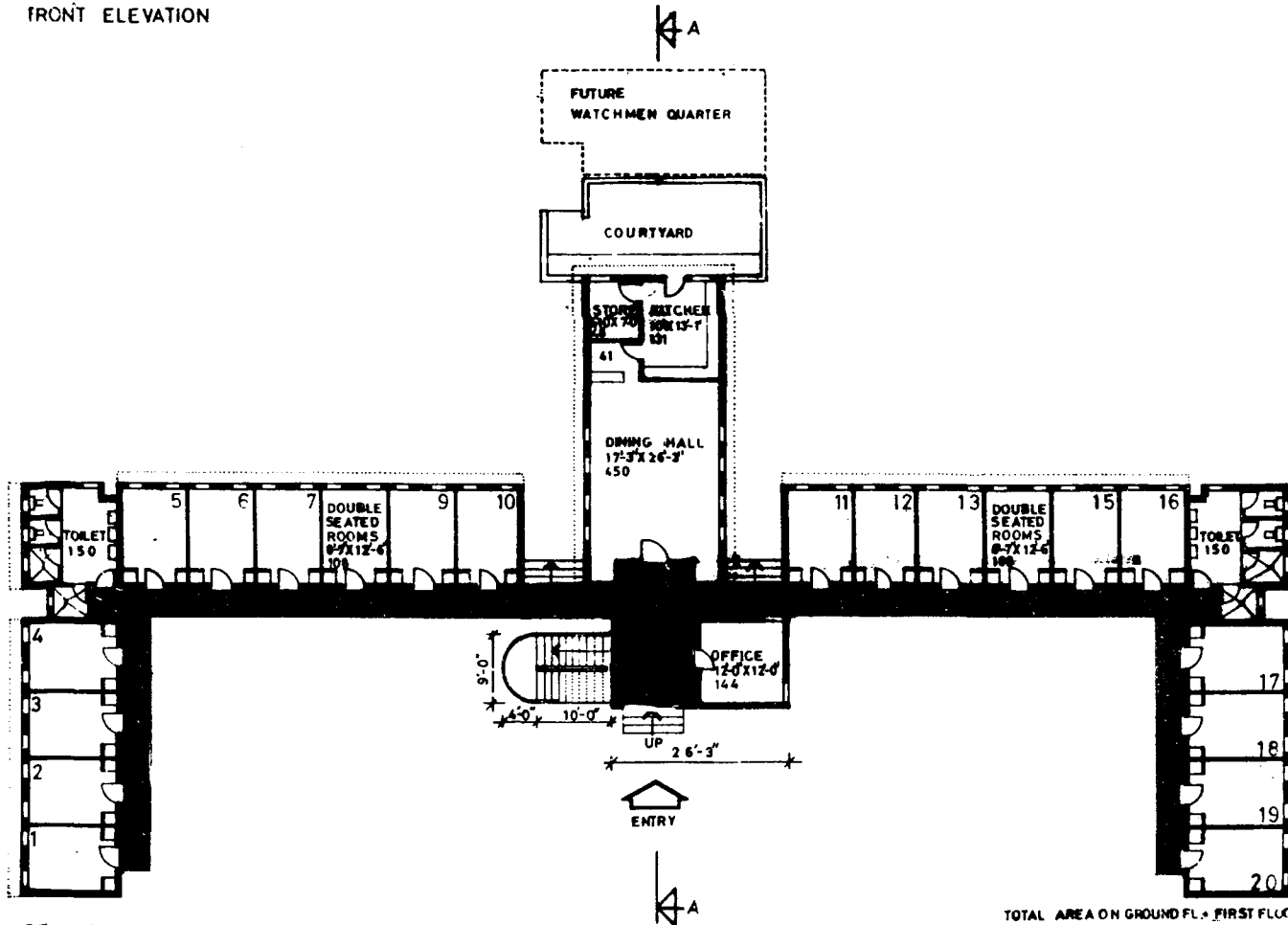


HOSTEL DESIGN - 2

40 DOUBLE SEATED ROOMS



FRONT ELEVATION



GROUND FLOOR PLAN

TOTAL AREA ON GROUND FL. FIRST FLOOR 8910.00 SQ. FT.
 TOTAL NO. OF INMATES 80 INMATES
 AVERAGE AREA PER INMATE 111.37 SQ. FT.

DET HOSTEL BUILDING FOR WARM AND HUMID ZONE



3.3 COLD ZONE

Institute Building

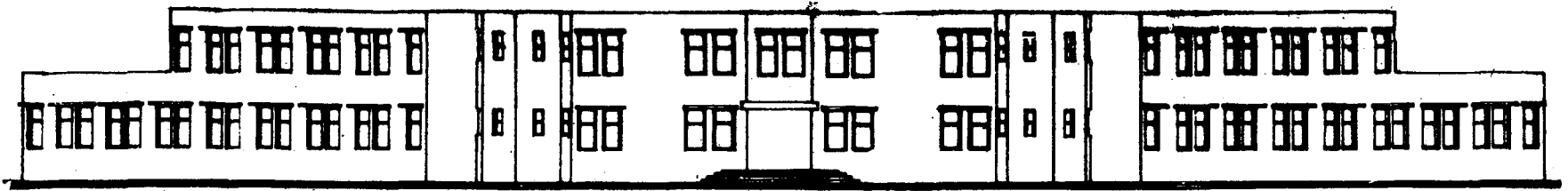
The primary objective in evolving this design is to ensure maximum natural heat gain for most of the rooms. The rooms, arranged mostly along a singly loaded corridor, face South, South East and South West. However to keep the length of the corridors within permissible limits of access from a single centrally located staircase, the building fattens at the two ends. The northern face of the corridor shall need to be enclosed by a wall with nominal windows for daylight and for keeping out the cold. The two terraces shall offer useful spill over areas for student's informal interaction. The entry is provided through the sunny side, so that the sunny lawns occur on the positive side of the complex.

Hostel Building

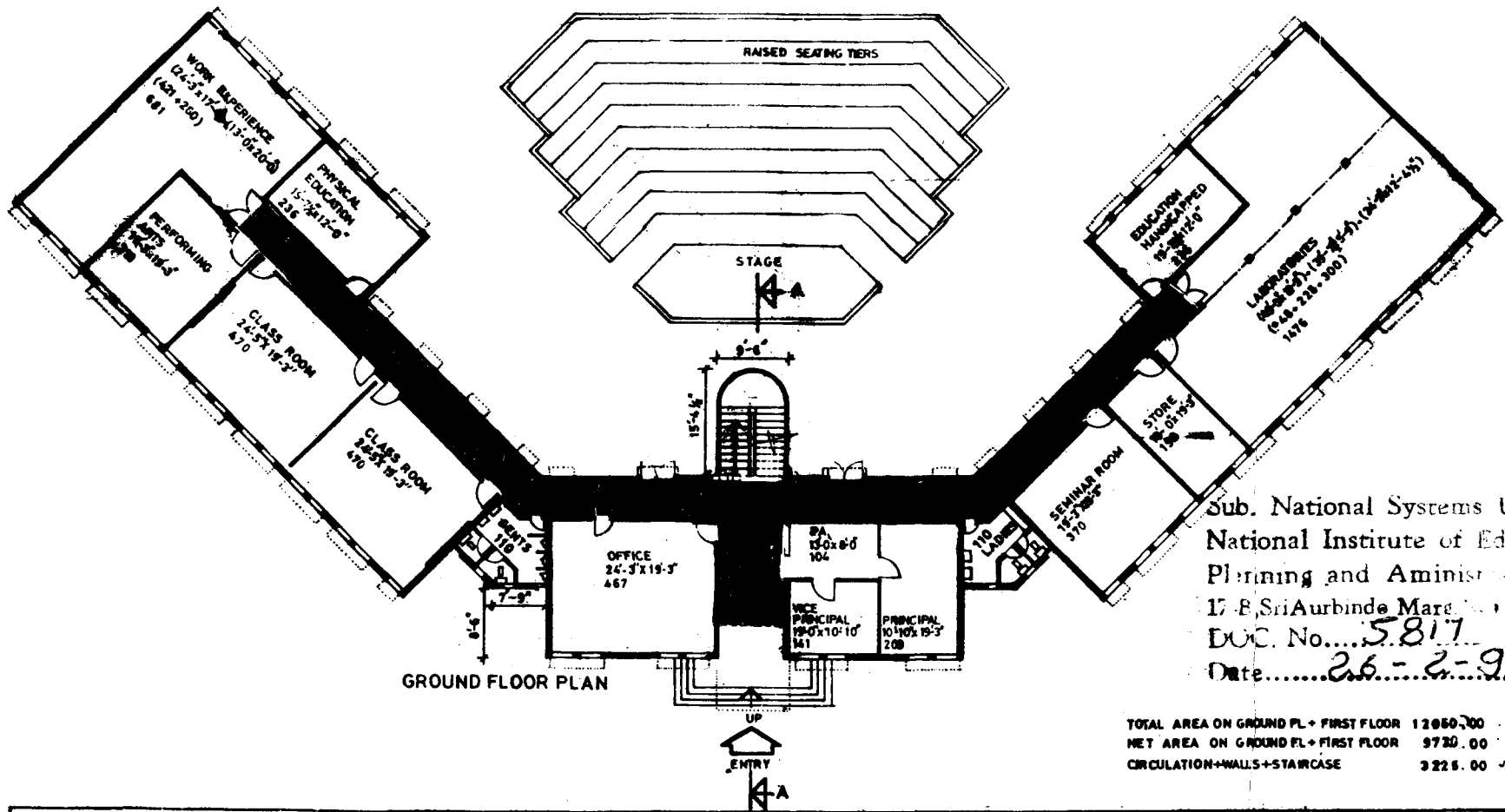
Accommodation for seventy six inmates has been provided in twenty eight two-seater rooms for in-service trainees and five four-seater rooms for pre-service trainees. The latter rooms are expected to have two-tier cots to save space.

Rooms have been arranged along a doubly loaded corridor. Entrance is provided axially. On the ground floor one wing accommodates the common room, dining room etc. The four-seater rooms are provided above the common areas on the ground floor. Structural requirements of the larger rooms and the common rooms have been thus logically resolved. The other rooms can have load bearing cross walls, and the costlier RC work can be avoided.

Toilets have been placed at the two ends to obviate the need for inmates to cross the foyer.



FRONT ELEVATION



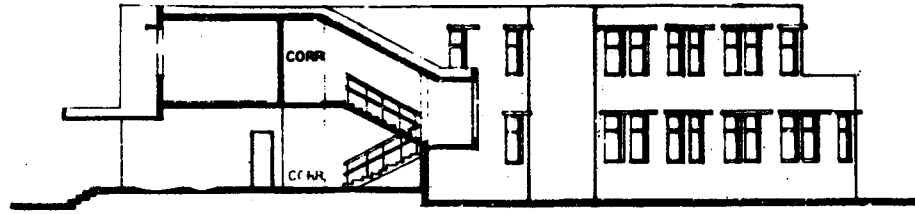
GROUND FLOOR PLAN

Sub. National Systems Unit,
 National Institute of Educational
 Planning and Administration
 17-E, Sri Aurobindo Marg, New Delhi-110 016
 DOC. No... 5817
 Date... 26-2-91

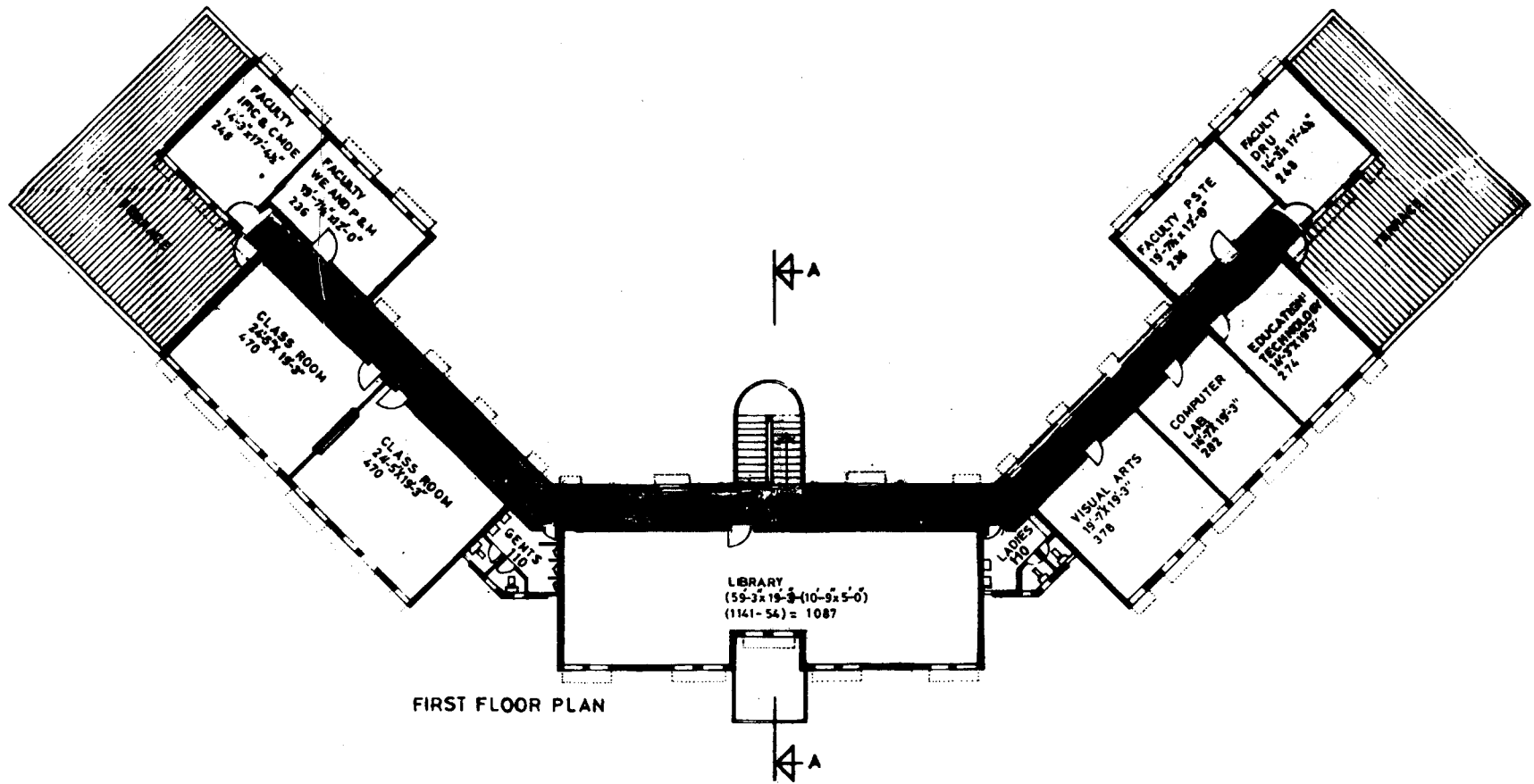
TOTAL AREA ON GROUND PL + FIRST FLOOR 12660.00 S.B. FT.
 NET AREA ON GROUND FL + FIRST FLOOR 9720.00 S.B. FT.
 CIRCULATION+WALLS+STAIRCASE 3225.00 S.B. FT.

DIET INSTITUTION BUILDING FOR COLD ZONE





SECTION AT A.A



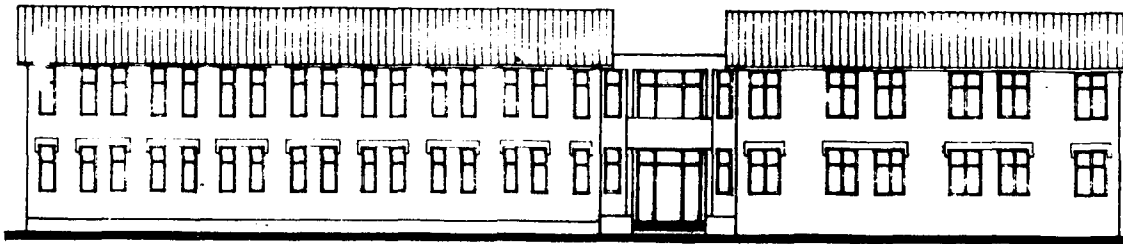
FIRST FLOOR PLAN



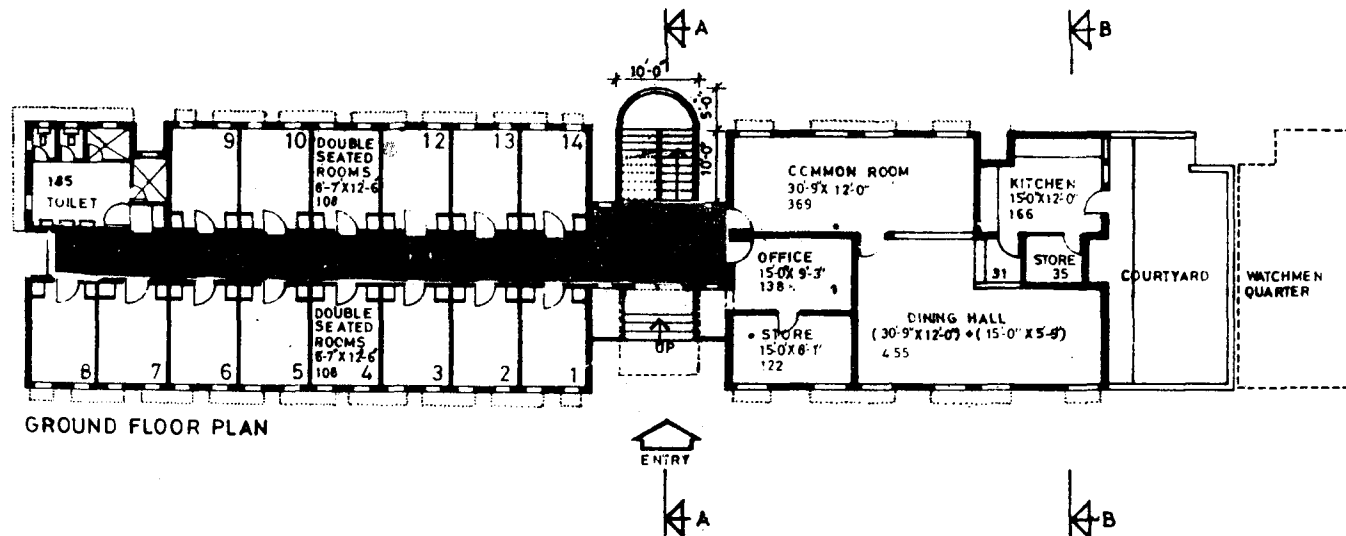
HOSTEL DESIGN - 3

28 DOUBLE SEATED ROOMS (IN SERVICE)

5 FOUR SEATED ROOMS (PRE SERVICE)



FRONT ELEVATION

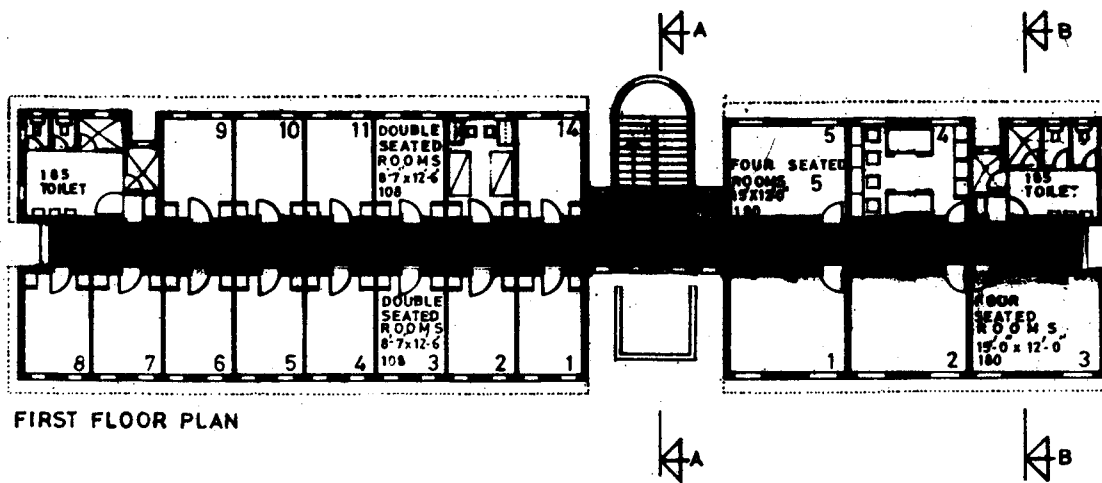
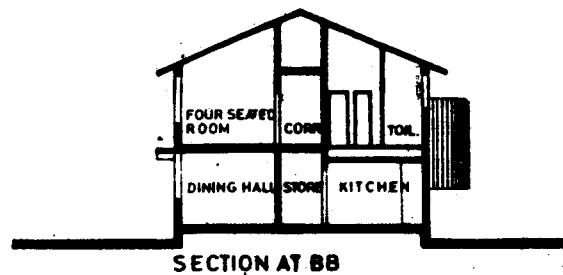
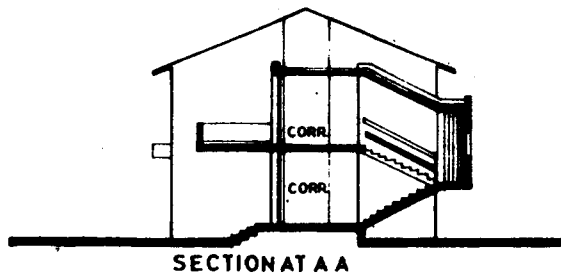


GROUND FLOOR PLAN

TOTAL AREA ON GROUND FL + FIRST FLOOR	8239.30	SQ. FT.
NO. OF INMATES	76.00	SQ. FT.
AVERAGE AREA PER INMATE	108.28	SQ. FT.

DIET HOSTEL BUILDING FOR COLD ZONE





FIRST FLOOR PLAN

DIET HOSTEL BUILDING FOR COLD ZONE



3.4 COMPOSITE ZONE

Institute Building

The building has been conceived as a well articulated structure having three distinct blocks i.e. (a) administrative, (b) academic and research, and (c) a single-storeyed shed for work experience and performing arts activities. Compactness has been achieved by arranging most rooms along doubly loaded corridors.

The entrance link connects the administrative and the academic blocks. The single-storeyed shed is related by a paved platform. The service core i.e. the staircase and the toilets are centrally located to keep movements to minimum.

Constraints of the doubly loaded corridor on the upper floor have been modified by a broadened corridor near the stairs and by the provision of an open terrace.

The space enclosed by the two arms of the buildings, can be used as an outdoor multipurpose space. Most of the rooms shall have North or South orientation and the class rooms can have East orientation.

Structural spans are either 20 feet or 13 feet, with beams spaced at every 10 feet centers.

Hostel Building

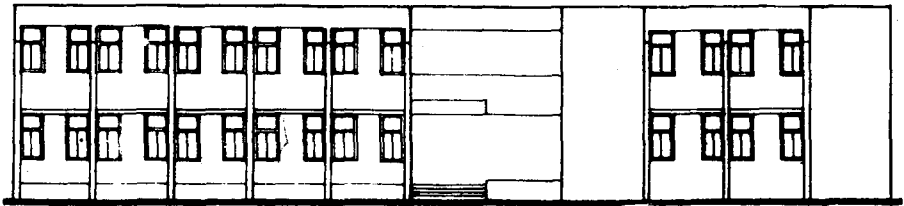
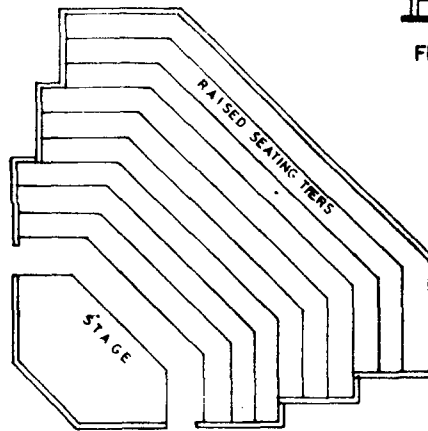
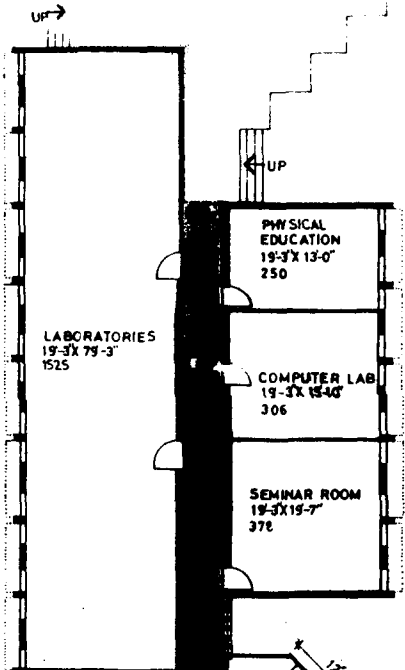
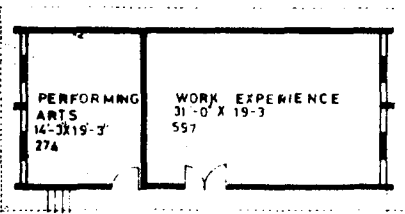
Accommodation for eighty inmates has been provided in forty two-seater rooms.

The rooms have been arranged along a doubly loaded corridor five feet wide. Entrance is provided axially in the middle of the block on the ground floor. One side of the block on the ground floor accommodates the office, common room and dining room etc.

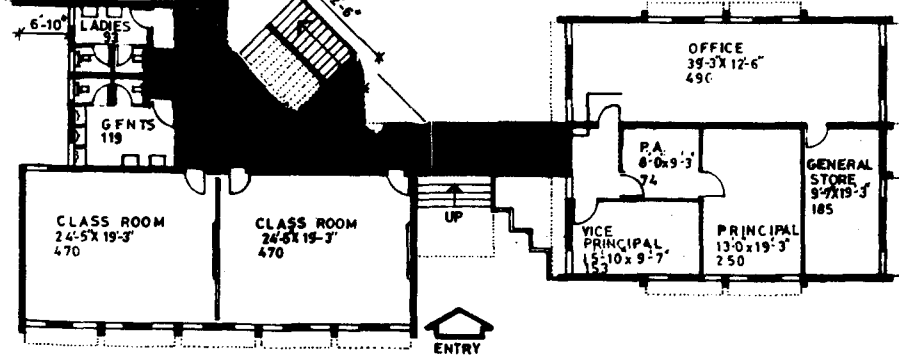
Toilets are provided at two ends of the building. Structural requirements of the larger rooms and the common rooms have been synchronised with the requirements of rooms on the first floor.

The block faces North or South.

INSTITUTE DESIGN-4



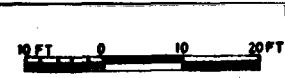
FRONT ELEVATION



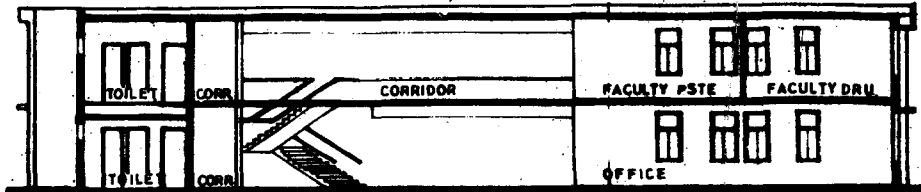
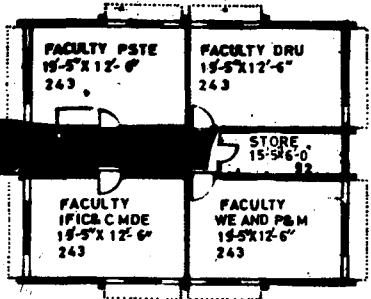
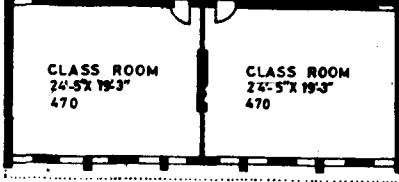
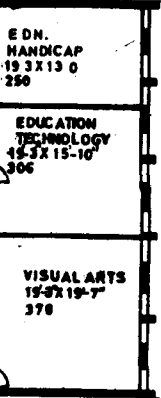
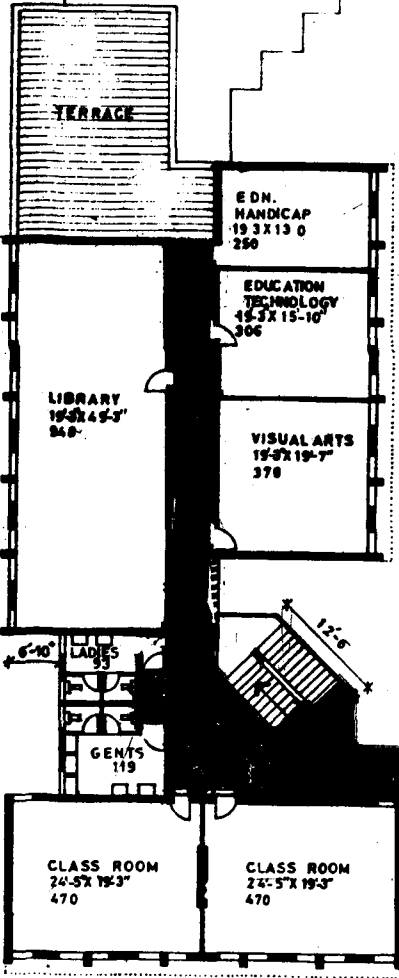
GROUND FLOOR PLAN

TOTAL AREA ON GROUND FL + FIRST FLOOR	12996.00	SG. F
NET AREA ON GROUND FL + FIRST FLOOR	9732.00	SG. F
CIRCULATION + WALLS + STAIR CASE	3264.00	SG. F

DIET INSTITUTION BUILDING FOR COMPOSITE ZONE



INSTITUTE DESIGN-4



SECTION AT AA

FIRST FLOOR PLAN



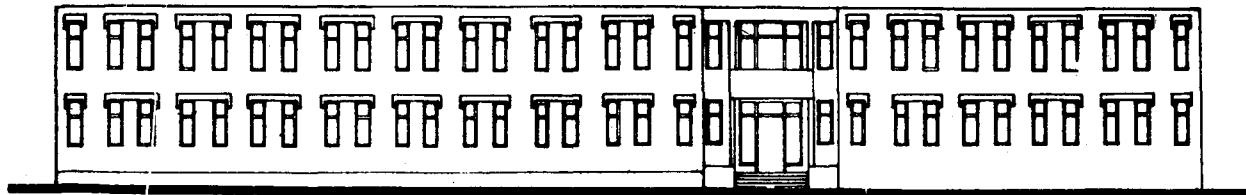
DIET INSTITUTION BUILDING FOR COMPOSITE ZONE

100FT 0 50 20FT

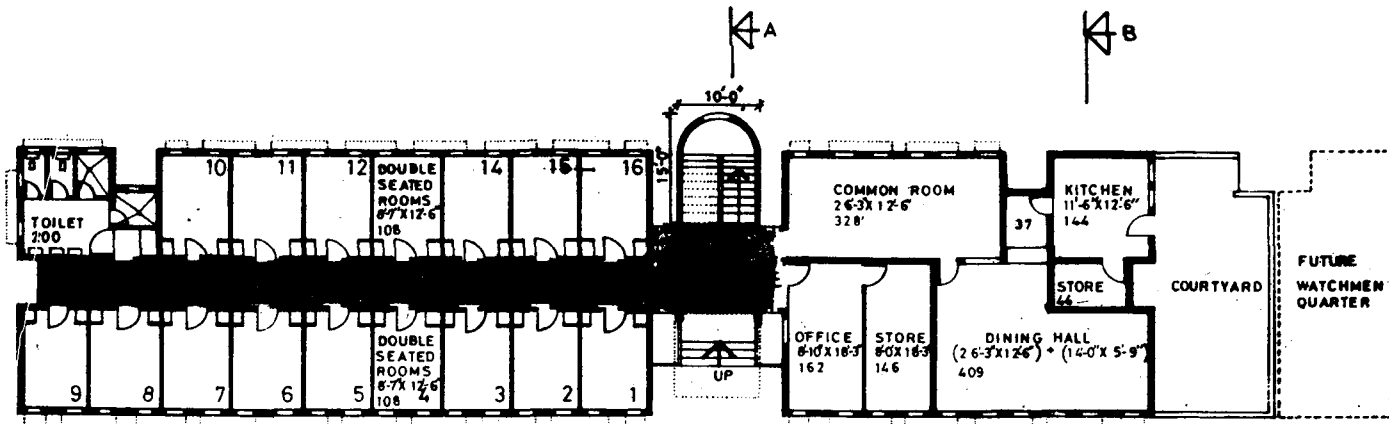
42

HOSTEL DESIGN-4

40 DOUBLE SEATED ROOMS



FRONT ELEVATION



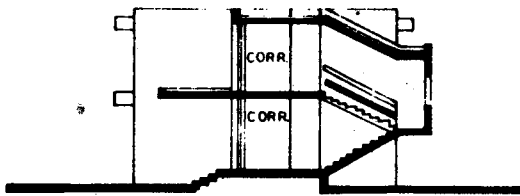
GROUND FLOOR PLAN

TOTAL AREA ON GROUND FL. FIRST FL. 8730.00 SQ.FT.
 NO. OF INMATES 80
 AVERAGE AREA PER INMATE 109.13 SQ.FT.

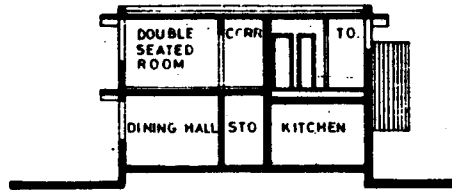
DIET HOSTEL BUILDING FOR COMPOSITE ZONE



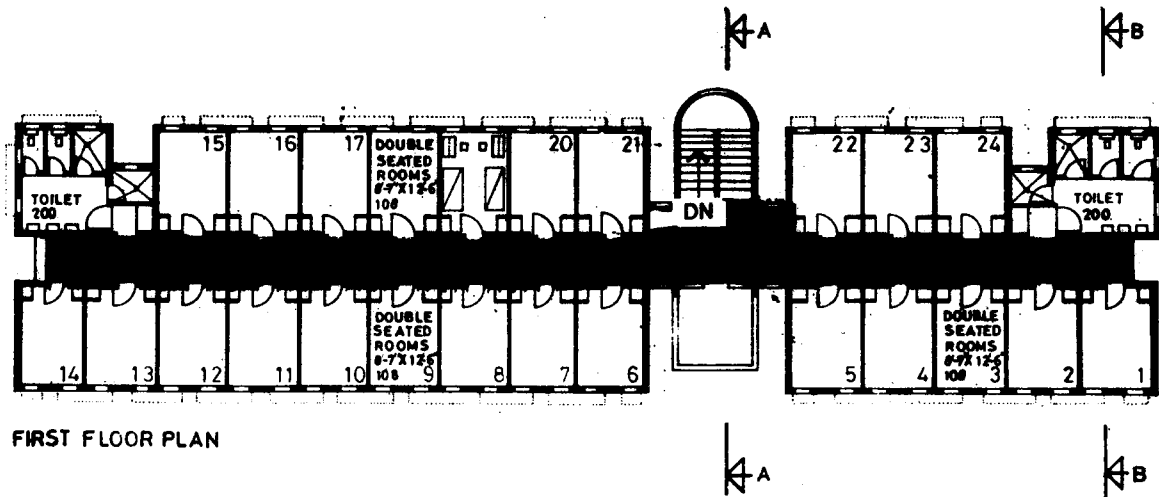
HOSTEL DESIGN - 4



SECTION AT AA



SECTION AT BB



FIRST FLOOR PLAN

DIET HOSTEL BUILDING FOR COMPOSITE ZONE

10FT 0 10 20FT



DETAILED DESIGN OF INDIVIDUAL SPACES

4.1 CLASS ROOM AND SEMINAR ROOM

(i) Classroom (Lecture Room) : Capacity 50 students

A classroom to be functionally efficient should, besides adequate dimensions, have-

- (i) Proper natural lighting of requisite intensity;
- (ii) Good acoustics.

A classroom with a carpet area of 470.0 sq.ft. can easily accommodate 50 students, if chairs with attached writing planks are used. However for human voice to be clearly heard, the speaker should not be at a distance greater than 7.0 meters. For adequate natural lighting, windows on two opposite walls of the room are to be provided.

With the above criteria a room measuring 24'-5" x 19'-3" can serve the purpose.

The room shall be provided with a large blackboard, a built-in cupboard and pinup space—all organised along the teacher's wall.

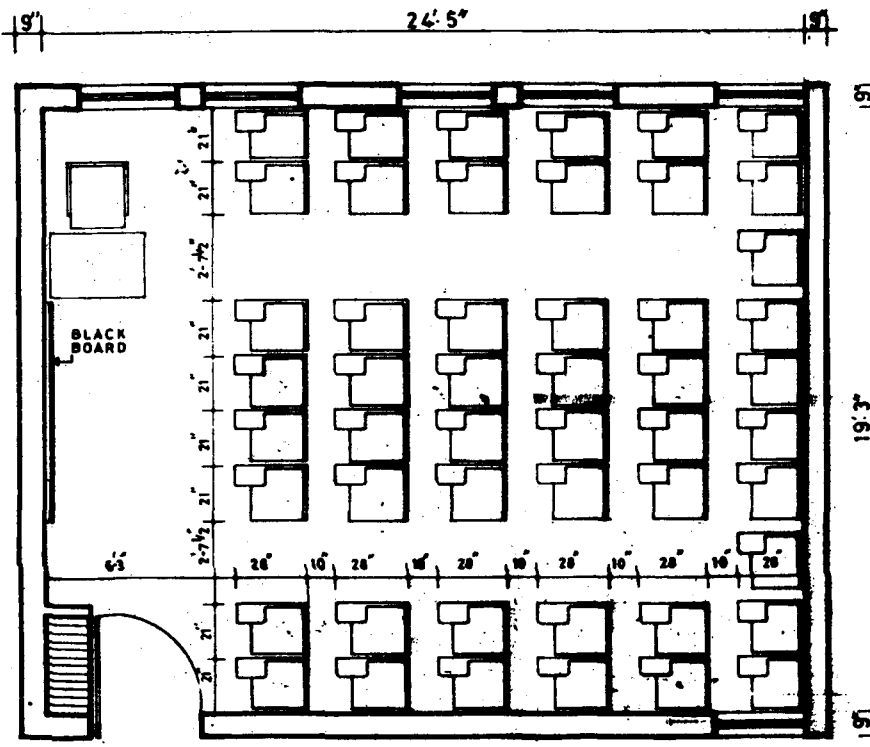
(ii) Seminar Room : Capacity upto 30 persons

Often programmes are to be arranged for small groups than the class size of fifty (50). For such programmes as also for seminars, workshops and faculty meetings etc., a well equipped seminar room is envisaged.

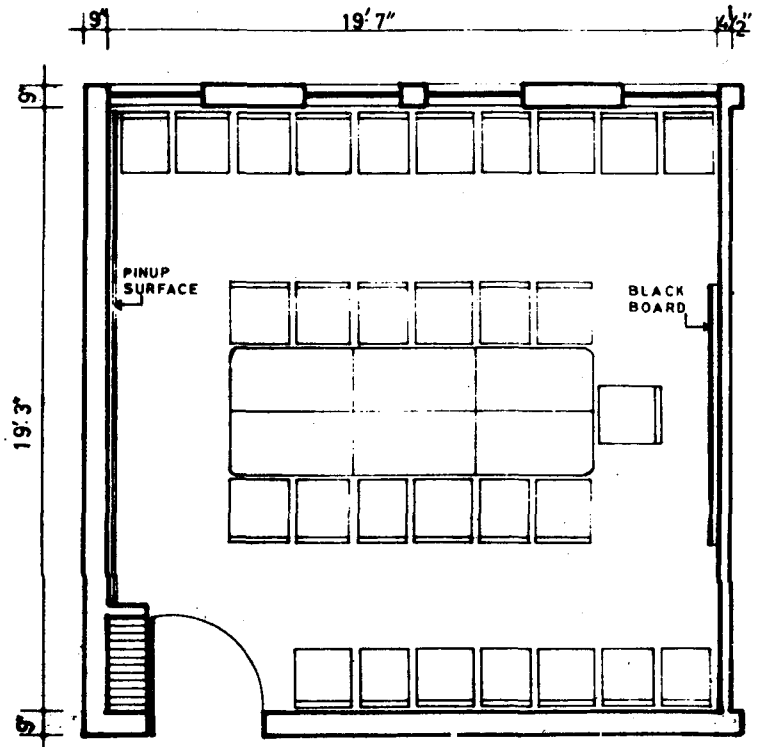
A seminar room with a carpet area of 378.0sq.ft. is suggested.

The room shall be provided with proper facilities like blackboard, generous pinup space, and electric points for audio-visual equipment etc.

Small modular tables, which can be easily arranged as per needs of the programme to be held, would render the seminar room versatile and convenient to use.



CLASS ROOM (FOR 50 STUDENTS)
 AREA - 470 SQ.FT.



SEMINAR ROOM (FOR 30 PERSON)
 AREA - 378 SQ.FT.

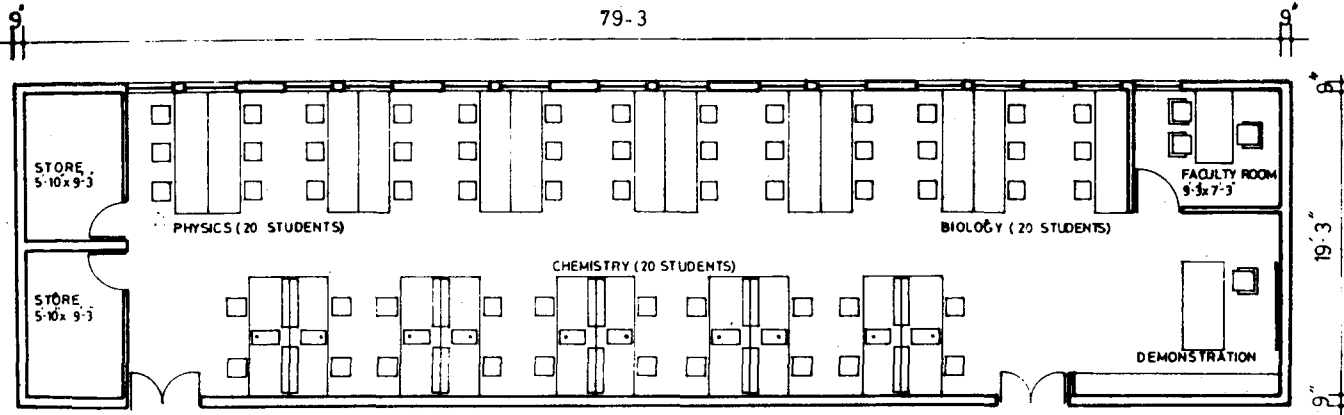
4.2 SCIENCES METHODS LABS AND LIBRARY

(i) Sciences Methods Labs

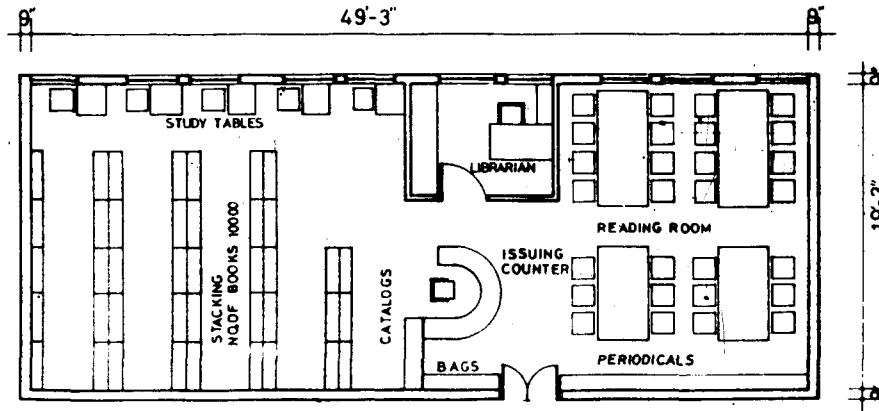
A single laboratory measuring 79'-3" x 9'-3" is envisaged to economies on floor space. Duplication of demonstration and circulation areas is provided. It provides for twenty work spaces each for chemistry, physics and biology experiments. A faculty cabin and two stores have also been provided. Furniture layout against the wall has been so arranged as to permit opening of window shutters without hinderance. The second long wall shall have high level windows/ventilators for better lighting and ventilation. Exhaust fans have to be provided for improving ventilation.

(ii) Library

The library measures 49'-3" x 19'-3", with single entrance/exit point for better control and for efficient and minimum circulation. The two main spaces viz. Reading Room and Stack Area are arranged on either side of the librarian's cabin and Book issue/return counter. The reading room provides for twenty eight students. Two numbers, eight-seated tables and two numbers, six-seated tables have been indicated. The blank wall along the aisle provides for Magazines/Journal Rack. The Stack Area provides for 10,000 books. Reference books need not be taken out of the Stack Area, as five chairs and tables have been provided there for the scholars. The central location of the Librarian's cabin achieves visual control. Rack for user's bags/belongings has been indicated immediately near the entrance, close to the issue desk. Natural lighting from North side is indicated.



SCIENCE METHODS LABS (REF INST. DESIGN-1)
 AREA-1525 SQ. FT.



LIBRARY (CAPACITY 10000 BOOKS)
 AREA-948 SQ. FT. (REF. INST. DESIGN-1)

4.3 FACULTY ROOM

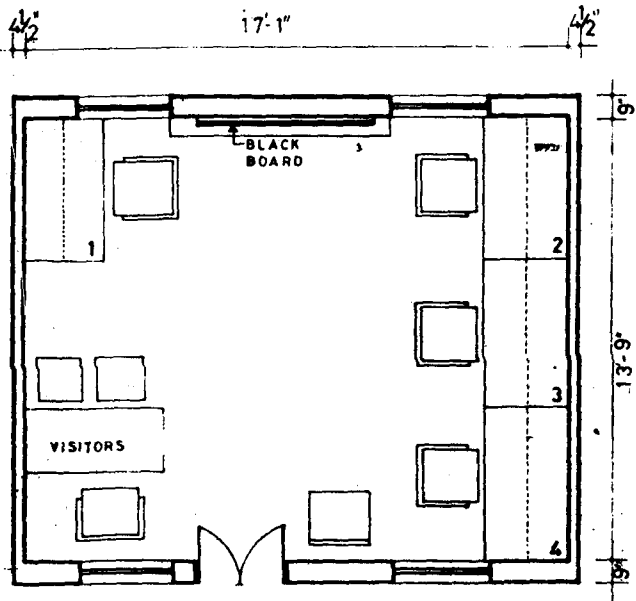
Ideally, each and every faculty member should have an independent cabin or room to himself. Limited resources for construction, however, require that the faculty share rooms. Aim should be to evolve a design which achieves-

- (a) Parity for co-occupants.
- (b) Better working environment i.e. privacy and openness.
- (c) Better aspect - climatic comfort.
- (d) Security of an individual's articles.
- (e) Multiuse of room for conduct of tutorials etc.

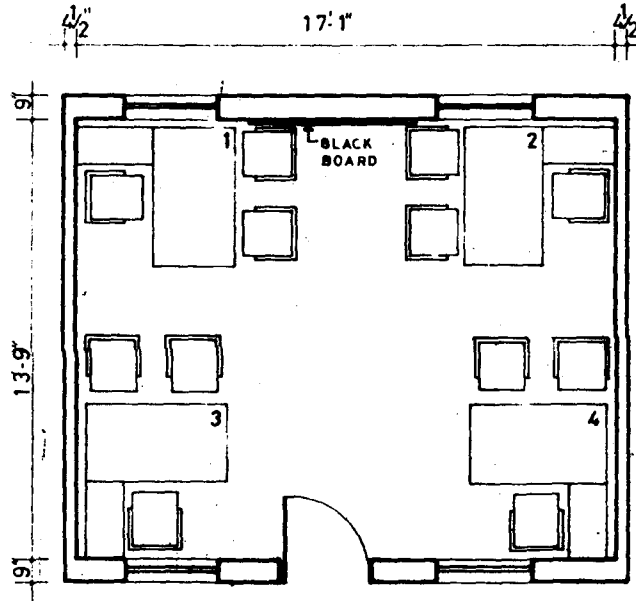
Four rooms, each measuring 17'-1" x 13'-9" are suggested. Each room shall accommodate four persons, thus providing for a total of sixteen faculty members (Rest of the faculty members will occupy other rooms specifically earmarked for them, as indicated in Annexure 13 of the DIET guidelines). The rooms shall be grouped in one location and wherever possible on upper floor for greater quiet. Their proximity to the administrative block is also indicated, considering the structural dimensions. It is difficult to provide good aspect for all the rooms if instead of four, four-seated rooms, eight, double-seated rooms were to be provided.

Two different furniture layouts are shown. The table below gives the comparative picture of the conventional and non-conventional layouts

TYPE	+ive POINTS	-ive POINTS
A.Non-conventional Layout	<p>*Suitable for quiet academic work</p> <p>*Good facility for holding tutorials</p> <p>*Good spacious visual environment. Discourages unnecessary visitors</p>	<p>*Receiving visitors & attending to them is constrained</p> <p>* Does not satisfy felt need of officious type of faculty</p>
B.Conventional Layout	<p>*Suitable for receiving & attending to visitors</p> <p>*Give semblance of parity</p>	<p>*The whole space cluttered up with furniture</p> <p>*Looks like office</p> <p>*Tutorials cannot be conducted.</p>



FACULTY ROOM FOR 4
 AREA 235 SQ. FT.
 FURNITURE LAYOUT ALT. - A



FACULTY ROOM FOR 4
 AREA 235 SQ. FT.
 FURNITURE LAYOUT ALT. - B

4.4 ADMINISTRATIVE OFFICE AND COMPUTER LAB

(i) Administrative Office

Administration space measures 39'-3" x 12'-6". Separate room is envisaged for the accountant which is accessible directly. Seven tables for the clerks have been arranged in an 'open plan' type office with the superintendent sharing the hall with rest of the administrative staff for better efficiency and control.

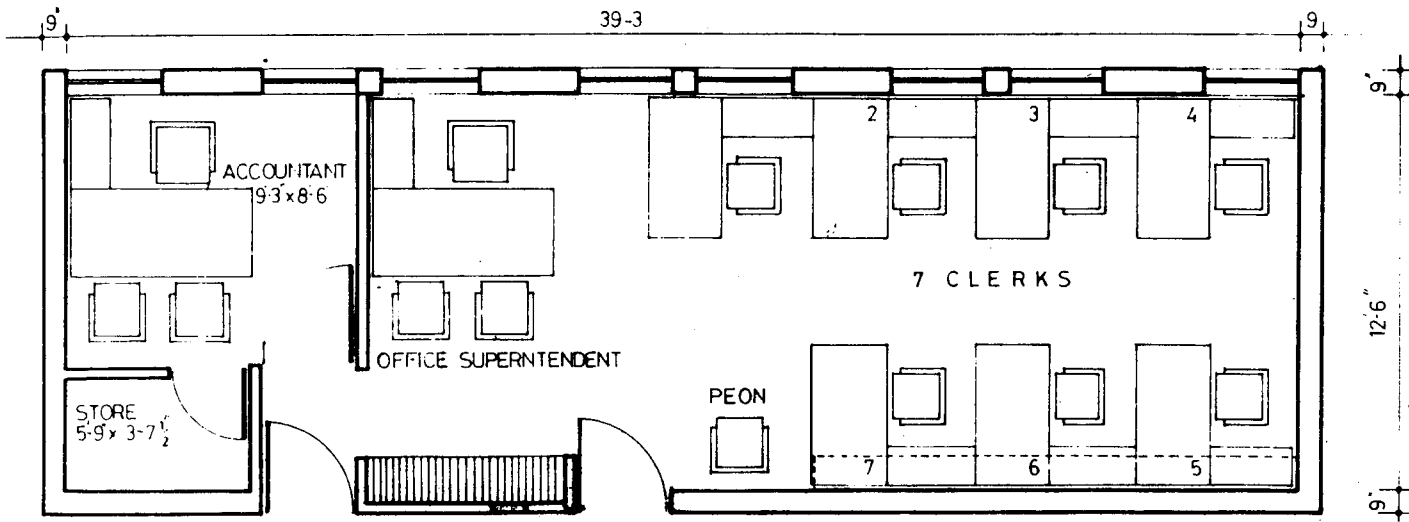
(ii) Computer Room

For the computer room locations that get heated up or are prone to high incidence of dirt/dust should be avoided. Thus, except for cold zones, the computer room shall be located preferably on the ground floor. The room should not be near to or face parking area, street etc.

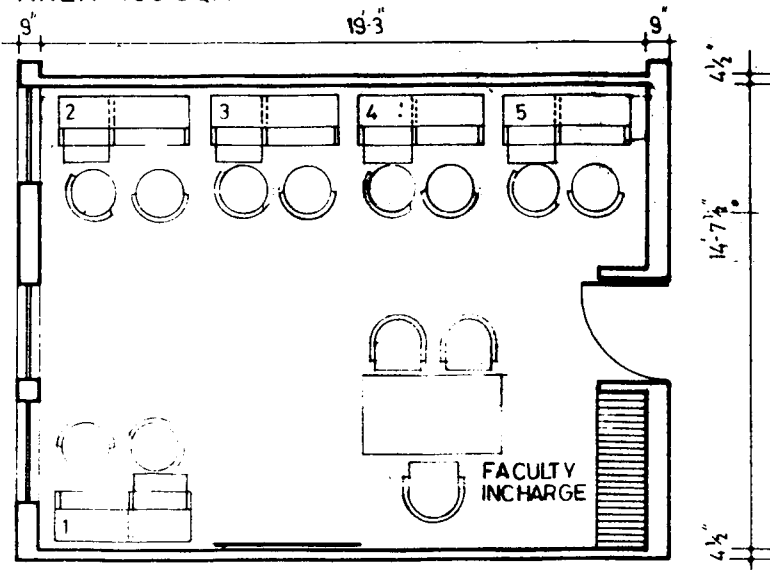
Rooms with large undisturbed and unbroken wall surfaces are ideal, as the computers can be arranged against the walls, free floor space is achieved and the electric points can be located on the wall. Built-in cupboards for computer stationery shall also be provided. A plexi glass board shall be provided for teaching purposes, instead of conventional blackboard, so as to avoid chalk dust.

Room of 282.0 sq.ft. area is suggested (19'-3" x 14'-7 1/2"). The door has to be in the central position. The furniture layout shows the chair and table positions for the teacher incharge. It shall be observed that the room design provides for disturbance-free working of students/participants and the teacher incharge. Even with ten persons operating the five computers work station, two users on each, and the teacher incharge attending to the visitor's, the room shall not appear to be unduly crowded.

For the computer room special windows which effectively keep out the dust and heat are required. Single glazed windows should have rubber lining and solar glass. Alternatively double glazed windows can be used, with air gap between two sheets of glass. The door shall have a hydraulic/automatic door closer.



ADMN. OFFICE (REF INST. DESIGN-1)
AREA 490 SQ. FT



COMPUTER LAB. (WITH 5 WORK-STATIONS)
AREA - 282 SQ. FT.

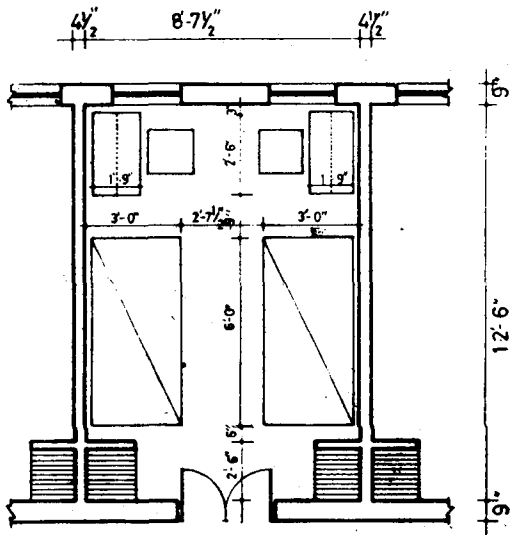
4.5 HOSTEL ROOM

Generally, double seated rooms with a carpet area of 108 sq.ft. and measuring 8'-7" x 12'-6" are suggested. As is clear from the layout, absolute parity has been achieved for both the occupants in respect of-

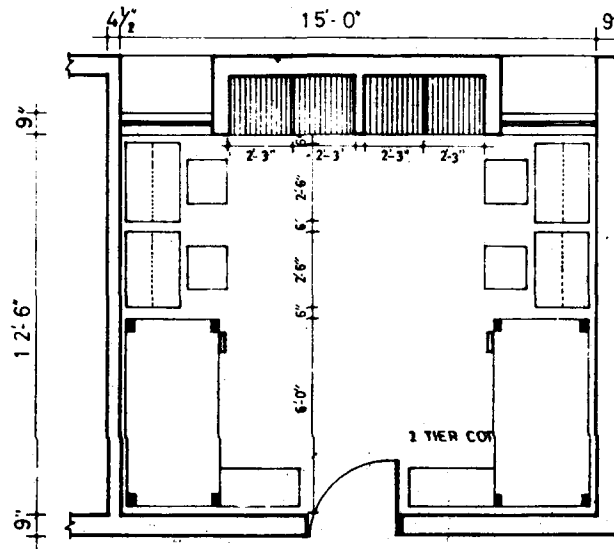
- (i) Position of writing desk in relation to the source of light and air;
- (ii) Position of bed in relation to the entrance and the windows; and
- (iii) Position and size of wardrobe in relation to the bed.

It would be observed that while meeting the demands of 'territorial claim' of each occupant, to avoid cause of conflict, the room furniture arrangement lends to the room a unified visual picture. The room also serves as a sitting room, with the beds substituting for seats. The bookracks are suggested to be fixed on to the wall over the individual writing desk. This arrangement will result in saving of floor space.

Buildings in cold regions shall be considerably costlier than in other regions. Hence further savings in floor area will be helpful. It is possible to consider provision of four-seater rooms with two-tier cots, for pre-service trainees. With this arrangement a room with a carpet area of 180.0 sq.ft. may suffice. The room dimensions work out to 15'-0" x 12'-0". A saving of 9 sq.ft. per inmate is achieved with this arrangement. The room, it shall be observed, presents a relatively spacious environment.



DOUBLE SEATED ROOM
AREA 108 SQ. FT.



FOUR SEATED ROOM
AREA 180 SQ. FT.

APPENDIX I

EXTRACTS OF PARAS 2.5, 4.6, 5.4 AND 6.3 OF DIET GUIDELINES

2.5 DIET : Physical Facilities

A DIET with the kind of functions and structure spelt out above would also need to have adequate physical facilities on the following lines:-

- (i) An institute campus of adequate area, preferably 10 acres.
- (ii) Buildings-
 - (a) Institute Building : with roughly 10,000 sq.ft. carpet area * (details may be seen in Annex 13)
 - (b) Hostel : separate hostel for men and women with a capacity of 150 to 200 seats.
 - (c) Staff Quarters: for atleast five staff members viz. Principal, two faculty members one or both of whom would function as hostel warden(s) and two class IV employees.

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4.6 Norms of Central Assistance

4.6.1 Non-Recurring Items

'Average Norms' of Central Assistance for DIET projects for non-recurring items would be as follows:-

Category of Project	Average Norms of Central Assistance (Rupees in lakhs)		
	For Civil Works	For Equip-ment	Total
1. 'Upgradation' Project	40.0	10.0	50.0
2. 'New' Projects	64.0	13.0	77.0

The above norms are by way of an average-to be achieved across various projects of each category, for a State/UT. Projects will have to be planned in a need-based manner, and competing requirements suitably prioritised, so that above averages are achieved. In the case of hilly districts some relaxation in the above average norms for civil works would be available.

Under 'Civil Works', Central assistance will be available in 'upgradation' cases for the following items also, within the above overall norm of Rs.40 lakhs.

- (i) Special Repairs and Alterations/Re-modelling in existing buildings provided this leads to overall economy through reduced need for new construction; and
- (ii) Augmentation of basic facilities on the

*By 'carpet area' here is meant the total built-up area of a building minus (i) area of circulation spaces (eg. verandahs, corridors, staircase, foyer etc.) and (ii) area under walls.

campus, like water supply, electrification etc., in case these are considered inadequate looking to the DIETs needs.

Within the norms of Rs.40 lakhs, outlay for the above two items will normally be kept within Rs.5 lakhs.

While it is not possible to indicate further breakup of normative amounts given above for 'upgradation' cases- due to wide variations in the circumstances of such cases - this can be done for 'new' cases because of their broad similarity. The rough break-up for such cases may be taken to be as follows-

A. Civil Works:	
Institute Building	Rs.26 lakhs
150 seater hostel	Rs.32 lakhs
5 staff quarters	Rs. 6 lakhs
TOTAL :	<u>Rs.64 lakhs</u>

The above amounts are inclusive of all cost associated with construction e.g. internal and external electrification, water supply, sanitation, service roads, fencing etc.

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5.4 Steps in formulation of project proposals

The Central Government will communicate each year to State Governments number of DIET projects that should be prepared for that particular year. Normally, all districts of a state may be expected to be covered over a three year period. The Task Force will prepare proposals for the indicated number of projects in the format given in Annex 11. For doing this, it will proceed as follows-

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(6) Determination of Financial Outlays for Non-Recurring Central Assistance

As already stated, cost of land acquisition, if any, has to be borne by the State Government. The next crucial step in the project formulation exercise is to work out outlays for civil works and equipment necessary to upgrade the chosen Government ETEI into a DIET, or for establishing a 'new' DIET. This may be done in the following manner:-

A. Civil Works

In an 'upgradation' case, outlay for civil works will be for the following items -

(i) Augmentation, to the extent necessary, of basic amenities e.g. water supply, sewerage, service roads, campus electrification, etc;

(ii) Special repairs and Alterations/Re-modelling in the existing building to enhance its safety, life-span and utilisation (Alteration/Re-modelling could be by way of enclosing verandahs, partitioning large halls etc.);

(iii) New Construction : (ii) should be so planned that it minimises the need for new construction, and is cost-effective. New construction should be planned to the extent still necessary after this, keeping in view the financial norms. Annex 13 suggests detailed physical norms for the complete buildings on a DIET campus to be set up in a district which fulfils all the conditions given in para 2.6.1. These should be suitably adapted and used for planning new construction. In upgradation

cases, norms so adapted for a 'new' campus should be treated as a reference level, the endeavour being to bring the existing institution upto such level. For example, suppose a Task Force decides that a complete DIET building should have 10,000 sq.ft. of carpet area, and the carpet area, of an existing ETEI building is as follows

Existing carpet area	6000 sq.ft.
Adtl. Carpet Area which would become available by enclosing a large verandah, and re-doing the badly damaged ceiling of a hall.	1000 sq.ft.
TOTAL :	<u>7000 sq.ft.</u>

In such a case, new constuction to the extent of about 3000 sq.ft. of carpet area may be planned. Of course, the size and details of the new building will have to be decided not in this crude arithmetical fashion, but by working out the additional spaces necessary (e.g. classrooms, office rooms, library, labs) keeping in view those already available.

Planning the building in a 'new' case is simpler except that it would still have to be done with care and skill so as to manage within the prescribed financial norm.

Having decided the physical parameters as above, rough/preliminary/stage-I cost estimates should be got drawn up by the construction agency concerned. Components of additional construction should be carefully prioritised, so that the less important ones could be omitted, if necessary, so as to conform to the financial norms. Size of the

additional hostel building would in particular have to be decided keeping the financial norm in view. For example, an institution may have a 50 seater hostel, and it may be desirable to add a 150 seater hostel, but if financial norms permit addition of only 100 seater hostel, planning will be done accordingly.

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6.3 Civil Works

The steps involved in execution of civil works would be as follows-

- (i) Determination for each project (by senior officer of the State Education Department, in consultation with those of the construction agency) the exact works which need to be executed, keeping in view the outlay approved by the Central Government for the purpose, i.e.
 - (a) Augmentation of basic amenities
 - (b) Special repairs of the existing buildings,
 - (c) Alterations and minor additions in the existing buildings, and
 - (d) New works to be taken up by way of Institute Building, hostel and staff quarters.

The norms given in Annex 13 (or their locally adapted version) would serve as the reference-frame for this exercise. In other words, deficiencies vis-a-vis, above norms would be identified and prioritised, and works will be planned to rectify them

within the approved outlays;

- (ii) The physical parameters of the works to be taken up having been settled as above, the construction agency will prepare detailed plans and estimates for them. Care will be taken to ensure that estimates remain within the outlay indicated for civil works in the sanction letter;

In both (i) and (ii) above, all possible steps will be taken to effect economy - for example, by following the suggestions and guidelines contained in Annex 14;

- (iii) Action will then be taken to accord technical sanction and administrative approval for the work according to above plans/estimates at a competent level. Before this action would have been taken for necessary provision in the budget/obtaining advance from contingency fund;

- (iv) The construction agency will then proceed to invite tenders, award work and get it executed. As soon as 75% of the first instalment for civil work is spent, the construction agency will report the fact to the State Education Department, to enable it to claim second instalment from the Central Government.

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APPENDIX II
ANNEX 13 OF DIET GUIDELINES

SUGGESTED PHYSICAL NORMS FOR THE BUILDINGS OF A DIET ESTABLISHED AS PER NORMS GIVEN IN ANNEX 4

Item	PRIORITY I			PRIORITY II			REMARKS
	No.	Carpet Area		No.	Carpet Area		
		Per Unit sq.ft.	Total sq.ft.		Per Unit sq.ft.	Total sq.ft.	
1	2	3	4	5	6	7	8
I. INSTITUTE BUILDING:							
1. Class Rooms	4	500	2000				Two of the class rooms may preferably have removable partition, and it would be desirable for the other two to be of lecture theatre type (sloping floor). A smaller class room size may do if class size will be restricted to 40.
2. Seminar Room	1	400	400				
3. Special Rooms:							
(i) Sciences Methods Labs-							
(a) For physical science including store	1	700	700				Labs. to have built-in blackboards, sinks with water taps, built in almirahs with glass panes, etc.
(b) For Life Sciences including store	1	700	700				
(c) Cabin for one Faculty member I/C	1	100	100				
(ii) Computer Lab. and Cabin for Faculty members I/C	1	300	300				To be fitted with Plexi Glass Board(not black board) and rubber linings for windows, for dust proofing. Adequate power sockets to be provided.
(iii) Resource Room for Education of Handicapped (including space for Faculty Member I/C)	1	250	250				

1	2	3	4	5	6	7	8
(iv)E.T. Display-cum-store	1	250	250				
(v)Rooms for art Education							
(a) For Visual Arts & crafts like paper & Clay Work (including space for Lecturer and Store)	1	400	400				Room to have 3 water taps with sinks.
(b) For Performing Arts (including store)	1	300	300				This room to be located in one corner of the building so as to cause minimum disturbance in other activities.
(vi)Shed-cum-Store for WE Activities	1	600	600				This need not form part of the main building, and may be constructed to more economical specifications e.g. with an A.C. sheet roof.
(vii)Store Room-cum-Cabin for Lecturer in Phy. Education	1	250	250				
TOTAL : -(3)			3850				
4. Staff Rooms							
(i) Principal's Room (with PA's Cabin)	1	300	300				
(ii) Room for Vice Principal/Sr. Lecturer I/C DRU	1	150	150				
(iii) Cabin for Academic Staff	9	125	1125				
		(each for 2 members on an average)					
(iv) Hall for Administrative staff to seat OS, Accountant and 7 clerks	1	500	500				
TOTAL -(4)			2075				

1	2	3	4	5	6	7	8
5. Library (including Reading Area and Librarian's Cabin)	1	1000	1000				
6. Miscellaneous :							
(i) General Store Room	1	225	225				
(ii) Toilets	one Unit each for Ladies and Gents	225	450				
(iii) Girls' Common Room				1	400	400	
(iv) Auditorium for about 200 (including pro- jection room and green room)				1	2250	2250	
(v) Canteen				1	500	500	
TOTAL -(6)			675			3150	
GRAND TOTAL (1) - (6)			10000			3150	
Add 30% for Circulation Areas (Verandahs, corridors, stair-cases & other spaces) and wall thickness			3000			945	
TOTAL BUILT-UP AREA			13000			4095	
					or say	4100*	

*Items classified under "Priority II" will be planned for only if it can be done within the financial ceilings, after providing these under "PRIORITY I"

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