


BASIC DESIGN STUDY REPORT
ON
THE IMPROVEMENT PROJECT OF
MEDICAL EQUIPMENT FOR
PUNJAB MEDICAL COLLEGE
IN
THE ISLAMIC REPUBLIC OF PAKISTAN

MARCH, 1985

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In response to the request of the Government of the Islamic Republic of Pakistan, the Government of Japan decided to conduct a study on the Improvement Project of Medical Equipment for Punjab Medical College and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Pakistan a study team headed by Dr. Satoru Nakamura, Professor of Hospital Administration, Tokyo Medical College, from January 14th to 31st, 1985.

The team had discussions with the officials concerned of the Government of Pakistan and conducted a field survey in Faisalabad area. After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will serve for the development of the project and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of the Islamic Republic of Pakistan for their close cooperation extended to the team.

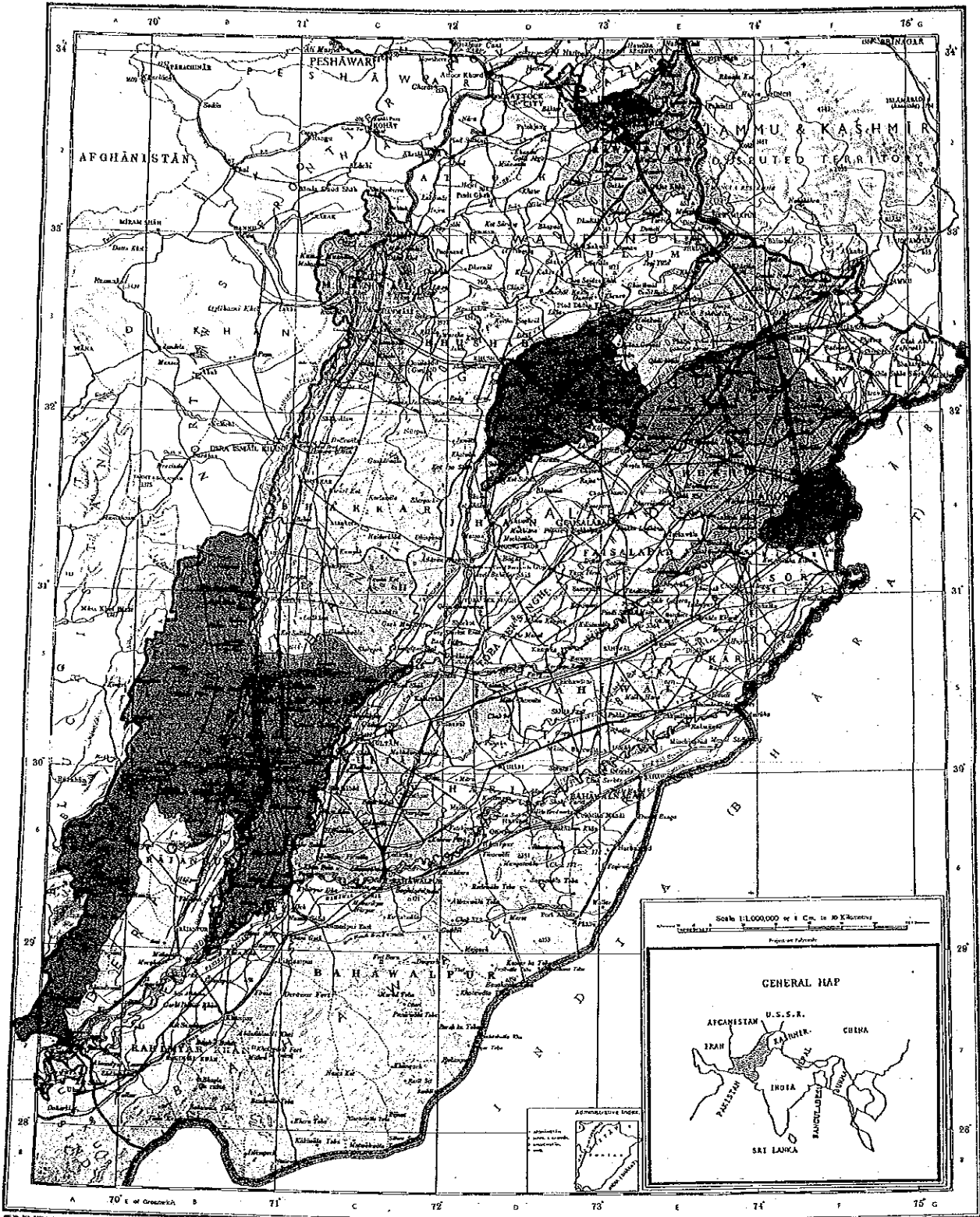
March, 1985



Keisuke Arita
President
Japan International Cooperation Agency

Scale 1:1,000,000 (1 Cm. to 10 Kilometres)

PUNJAB



Scale 1:1,000,000 or 1 Cm. to 10 Kilometres
Project on Punjab

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Source of the names on adjacent countries, etc.

Refer to this map as: 1:1,000,000 PROVINCE
MAP OF PUNJAB
FOURTH EDITION.

GOVERNMENT OF PUNJAB
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SUMMARY

Provision of health service in the Islamic Republic of Pakistan falls under the jurisdiction of the Ministry of Health, Special Education and Social Welfare, and modernization of medical care is one of the country's most important policies to promote its social development. Particularly under the five-year plan now being vigorously executed by the government, much emphasis has been laid on the education of health personnel, development of a preventive medical care system in rural areas, and improvement of health service facilities.

Yet the current situation of health services in this country is quite inadequate chiefly due to its rapid population increase accrued from the social and cultural background. The number of beds per 100,000 population, for instance, is only 57, too few to meet demand. Another example is the very high infant mortality rate, 1 out of 10 live births, which illustrates the inefficient public health measures.

To tackle these problems, the Ministry of Health has planned to establish Punjab Medical College as a nucleus for district health service in Faisalabad, a city in the Punjab with a population of approximately 1.5 million. The construction and equipment installation for the school buildings have already been completed, and the attached hospital is now under construction.

With construction well under way, the Government of Pakistan requested the Government of Japan to offer a grant aid to provide the college hospital with the necessary medical equipment. In response to this, the Japan International Cooperation Agency sent the Basic Design Study Team to Pakistan between January 14 and 31, 1985. The Study Team had conferences with the authorities and representatives of the Pakistani government and Punjab Medical College, and conducted a survey of the existing facilities and the current health situation of the country to confirm the background and content of the request.

The buildings to be furnished in answer to the present request are the Ward I with 400 beds and the Diagnostic and Service Departments. These buildings are to constitute an integral part of a comprehensive

educational and medical institution, of which the college is already in operation. Also included are the Outpatient Department and Ward II, which are excluded from the present Project as their construction has not yet begun.

The one-story Service Block, the four-story Ward I and the two-story Diagnostic Block are linearly and functionally connected to one another, with the Ward in the middle. Each block accommodates such essential components as follows:

Departments	Components
Ward I (176,700 sft)	Obstetrics (20 Operation rooms & 4 Delivery rooms), 63 Patient rooms, Doctors' offices
Service (21,400 sft)	Laundry, Kitchen, Power plant, Storage for drugs and supplies
Diagnostic (47,418 sft)	14 O.R.'s, Blood bank, Endoscopy, Emergency (2 O.R.'s), 6 Radiology rooms, Labs, ICU

The items requested are medical equipment, supplies, spare parts, etc. The diversity reflects the nature of the hospital as an educational institution. Its size, too, will ultimately reach 900 beds, far larger than that of an average hospital. Thus the hospital will make a substantial contribution to the alleviation of the chronic shortage of hospital beds and to the improvement of the medical care in the district.

The major items requested are as follows:

Departments	Items requested
Ward I	Operating/Delivery tables, Beds, Stretchers
Service	Laundry machines, Cooking machines & utensils, Independent power plant, Boilers
Diagnostic	X-ray apparatuses, Operating tables, Anesthesia apparatuses
Miscellaneous	Ambulances, Air conditioners, Stabilizers

Some of the requested items had to be excluded from the present Project due to the current level of medical technology in Pakistan, the difficulty of maintenance involved, and the physical limitation of the hospital.

The operation and maintenance of the equipment to be installed are also very important factors especially in such a large-scale project as this. The Study Team thus made an inquiry in this regard in Lahore and concluded that the local agencies in urban areas dealing in Japanese products can provide sufficient support.

The annual operating cost for the hospital as a whole is estimated at approximately 24.75 million Rs. (¥420.75 million), and most of it will be borne by the Government of the Punjab.

Buildings	5,655,000
Equipment	300,000
Personnel expenses	15,765,000
Reserve fund	3,030,000
Total	24,750,000 Rs.

Drugs and other consumables will be supplied through the Medical Stores Depot controlled by the provincial government. It will be necessary, however, to provide some of the major consumables and spare parts free of charge at the time of the inauguration, to partially relieve the hospital of the initial expenditures.

In the final analysis, it will take 15 months after the conclusion of the contract to transport and install the equipment.

All the buildings to be furnished under the present Project were constructed through Pakistan's own efforts. This clearly attests to the enthusiasm of the country for this project.

Thus, the Medical Equipment Provision Project is expected to greatly contribute to improvement of health service in the Faisalabad District and to elimination of the qualitative and quantitative insufficiency of health personnel in Pakistan.

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CHAPTER 1. INTRODUCTION

Ever since its independence in 1956, the Islamic Republic of Pakistan has been carrying out a series of five-year plans in order to achieve social and economic development. Under these plans the field of health has also been a major target of these improvement measures, but the results so far attained are far from satisfactory. Medical facilities and health personnel are deplorably insufficient, both in quality and quantity, in rural as well as in urban areas, and the projects focused on health resources are inadequate and backward. In response to this situation, the Government of Pakistan has planned to establish a medical college in the Faisalabad District in the Punjab Province, where there is a crying need for medical facilities due to the rapid population increase, so as to provide better health care to its inhabitants.

The "Establishment of Punjab Medical College, Faisalabad, Project", as it is called, was begun in 1973 and the construction of the college in 1978. As of January, 1985, the construction of the school has nearly been completed, and of the hospital buildings, the construction of a ward with a 400-bed capacity as well as central diagnostic and service blocks is approaching completion.

The present request made by the Pakistani government was for a grant aid to provide the college hospital with the necessary medical equipment. The Japanese government thereupon commissioned the Japan International Cooperation Agency to send a study team to investigate the content and ascertain the suitability of the Project in Pakistan.

The "Basic Design Study Team" discussed the matter with the Ministry of Finance and the Ministry of Health, Special Education and Social Welfare of Pakistan and with the Health Department of the Punjab, conducted surveying tours and environmental assessments of Punjab Medical College and its hospital site, and studied the medical equipment to be provided on the basis of repeated discussions with professors and many others concerned.

The present paper presents the background, purpose and suitability of the Project as obtained through the analysis of data collected and other study results, along with a list of medical equipment to be provided and a plan for its transport, installation and maintenance.

CHAPTER 2.
BACKGROUND OF THE PROJECT

2-1 GENERAL

The Islamic Republic of Pakistan, having been under the control of Britain for a long time and then a dominion of the British Commonwealth of Nations in 1947, became independent as a republic in 1956. In its short history after the independence East Pakistan separated itself as Bangladesh in 1971.

Topographically, the country borders on Iran, Afganistan, China and India, facing the Arabian Sea on the south. It covers 885km from E. to W. and 1,600km from N. to S., ranging from Lat. 23'30" N. to Lat. 38'45" N. and from Long 61' E. to Long. 75'30" E. It has an area of 796,095km², about 2.1 times as large as that of Japan. The River Indas flows through its central part and its basin is the cradle of the famous Indas Civilization (B.C. 5,000).

The climate is on the whole subtropical: it is sultry with much rain in summer due to the humid southwest wind from the sea, and dry and cool in winter owing to the northeast wind blowing from the Asian Continent.

Faisalabad, where Punjab Medical College lies, is situated at a similar latitude as Kagoshima. It is very hot there in May, June and July and the mercury rises to around 40°C in the daytime. The rainy season lasts for full two months of July and August. With the close of the rainy season in September the weather is fine and comfortable in October and November. In the winter months of December, January and February, the atmospheric temperature is about 15°C on an average in the daytime, but it is cold enough at night to necessitate heating devices.

The country is geographically composed of the Northwest mountain region with the Hindukush, Himalayan and Slaiman Mountains, the plain covering the basin of the Indas, and Dekan Highlands. The population is 86,650,000 as of January, 1982, and the growth rate is 2.98%, which is extraordinarily high among the developing countries. (The Japanese Embassy says that the growth rate is actually 3.5%.) The population has a larger proportion of younger people; the age groups under 20 constitute about 60% while those over 54 do not amount to 10% of the population.

The population per square km is 105, but 80% of the population concentrate in the Punjab and Sind Provinces. The Baluchistan Province, on the other hand, occupies 43.6% of the total area, but has only 6.14% of the total population.

The proportions of workers as classified by industry are: 60% for the primary industries such as agriculture and fishery, 15% for the secondary industries like manufacturing, and 25% for the tertiary industries like services.

The state religion is Islam as seen in the name of the country, and 97% of the nation are Moslims. Its main policy is the establishment of a society and economic structure founded on Islamic doctrine.

They have two official languages, Urdu and English. The use of the former is increasingly favored nowadays. English is spoken in the cities and in the administrative organizations, but not in other areas.

As to the culture and education, much remains to be done: the average literacy is 2.4% and the enrollment to primary education is 48%. Yet school attendance by girls is far lower than by boys. This reflects the nation's social and religious values set for females and it will constitute a serious problem to the development of the country if the traditional moral perspective is not drastically changed.

2-2 CIRCUMSTANCES OF HEALTH AND MEDICAL SERVICES

2-2-1 General situation

Pakistan has tried to improve its low health standard resulting from its insanitary environment, malnutrition, shortage of medical facilities, and lack of maternity protection policies since its independence. Except for training physicians, it has not yet attained much results till today.

According to the statistics of the health data for Pakistan in 1983 collected by the Pakistani government, as shown in the following table, the life expectancy at birth is 55 for men and 54 for women. Infant mortality per 1,000 live births is 100, and child death rate (age 1-4) per 1,000 population is 10. Crude death rate per 1,000 population is 12. The main causes of infant deaths are diarrhea, pneumonia, tuberculosis, accidents, and circulatory diseases. The death rate of pregnant women is also high and is estimated to be 6-8 per 1,000 live births.

As for the morbidity, the high incidence of infections is characteristic. Among children, measles, whooping cough, tetanus, and diarrheal diseases are prevalent. More than 1.6 million are suffering from active T.B. PEM resulting from low proteins and low calories is prevalent and 7% of the children below five years old suffer from the third degree malnutrition.

Health Related Statistics in Pakistan

Health Indices	Pakistan			Japan	
	1965	1978	1983	1983	
Life expectancy at birth (years)	Male	47	54	55	74
	Female	45	53	54	80
Infant mortality rate (aged 0-1)	(Per 1,000 live births)	140	105	100	6.6
Child death rate (aged 1-4)	(Per 1,000)	12	-	10	0.6
Crude death rate	(Per 1,000)	16	14	12	6.0

Source: The Sixth Five Year Plan; Health and Health Related Statistics in Japan

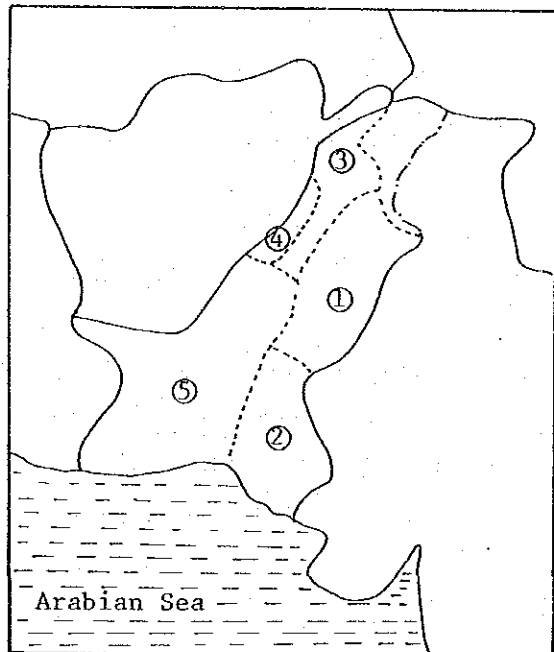
The present health level in Pakistan corresponds to that in Japan in 1940-1948.

It is noteworthy that the morbidities of circulatory diseases and neoplasms are sharply increasing nowadays. The morbidity of the latter is estimated at 40-50% per million or higher. Mental diseases are encountered in at least 1% of the population of all ages, and 7-9% of children and most of adults are suffering from periodontial diseases.

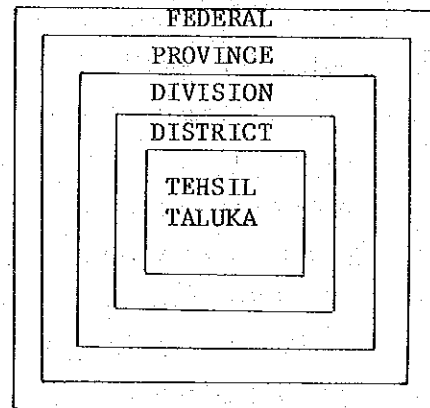
2-2-2 Administrative organization

Pakistan, a country under a federal republic regime, has four provinces consisting of SIND, PUNJAB, NORTH WESTERN FRONTIER and BALUCHISTAN, and AZAD KASHMIR, the government's direct jurisdiction. Islamabad constitutes an independent jurisdiction as the FEDERAL CAPITAL AREA. A PROVINCE is administratively subdivided, under the GAVANER, into DIVISIONS, DISTRICTS and TEHSIL/TALUKA.

Administrative Index



Administration Structure



—— International Boundaries
- - - - Provincial Boundaries

- ① Punjab
- ② Sind
- ③ NWFP
- ④ Tribal Area
- ⑤ Baluchistan

No. of Administrative Jurisdictions by Province

	Pakistan	Punjab	Sind	NWFP	Baluchistan
Province	4	1	1	1	1
Divisions	15	5	3	3	4
Districts	64	21	15	12	16
Tehsils/Talukas	298	75	68	61	94
Mouzas Villages	41,569	24,996	5,910	3,275	7,388

* Excludes Federally Administered Tribal Areas.

Source: Health & Health Related Statistics of Pakistan:
Planning Commission, September 1978.

The present administration is a military regime having come into power in November, 1977. Mohammad Ziaul Haq, the president, also holds the post of the commander in chief under the marshal law, and the commanders in the four provinces under the same law are the governors of the provinces respectively. Though the national and provincial assemblies have been suspended at present, general election is scheduled in February, 1985, to transfer the administrative authority to a civil government. Vigorous election campaigns were going on while the Basic Study Team was conducting investigations.

Health administration is in the charge of the Ministry of Health, Special Education and Social Welfare. Other than the overall control of the health services in the country, it supervises those medical and research facilities under its direct jurisdiction. Actual execution of health measures is commissioned to the provincial health departments, which are also responsible for medical and paramedical education.

2-2-3 Health and medical services

At present health and medical services are provided in such a way as shown in the table below. The primary medical facilities are: 1,715 BHU's (Basic Health Units), 374 RHC's (Rural Health Centers), 867 MCHC's (Maternity Child Health Centers), 3,994 Dispensaries, and 632 Sub Centers.

The number of hospital beds in the secondary and tertiary medical facilities is 51,400. The number of the population per primary medical facility is 12,943 and that per bed is 1,790. Thus the level of medical care provision is seriously inadequate.

Health Facilities Statistics in Pakistan

Category	Achievement
Basic Health Units	1,715
Rural Health Centers	374
Maternity Child Health Centers	867
Dispensaries	3,994
Sub Centers	632
Hospital Beds	51,400

Source: The Sixth Five Year Plan

The payment of medical fee (user's share) varies depending on each province's policy: the care offered by the Baluchistan and Federal governments is free of charge. Outpatient fee is 1R. (About 16 Yen) per capita in the Punjab, Sind and NWFP, and inpatients are required to pay 5Rs. for admission in NWFP. In the Punjab, the dietary fee is set in grades according to the patients' income. In the Sind hospital fee is 2Rs. a day.

In all the provinces patients are charged much less than the actual medical cost. The expenditures for health care are 3-4% of all the budget allotted for development and about 2% of the general budget. Thus the national medical cost amounts merely to a fifth of those in other developing countries.

One of the most important problems now is that the insufficient fund for the running cost (personnel and active maintenance expenses) has prevented the existing facilities from functioning.

So the government plans to ask the users of medical services to bear their expenses. This will stimulate the private sector into playing a supplementary role to the public sector, activating both toward a better provision of health care. The national demand for drugs is 3.5 billion Rs. and 15 pharmaceutical companies have a share of 70% of the market. The market is growing at an annual rate of 25% and now about 6,500 kinds of registered drugs are on market.

Of these drugs, 4,500 are produced in 206 domestic factories and the remaining 2,000 are imported. Their prices are controlled by the Ministry of Health, Special Education and Social Welfare. Medical research is poorly organized and insufficiently funded or staffed. Thus the research activities are almost solely dependent on the medical colleges and their facilities.

Furthermore the system for collecting health data is complicated, inaccurate and incompetent. The tardy processing of the data and inconsistent definition of the statistical indices make comparative studies of health data among the Provinces almost impossible.

This is partly due to the fact that health personnel have had little training in data collecting and statistics, effective means to plan, manage and evaluate their own work.

The total absence of coordinating function from the health field as a whole has resulted in the gap between planning and execution. And the staff on each level, with a vaguely defined authority of decision-making, has contributed to confusion rather than coordination in relation to execution of the authority. Therefore the principles of hospital administration should be introduced, with special emphasis on personnel management, into the on-the-job training of health personnel and fostering of the intermediate executives, along with a closer cooperation with related health facilities and participation of the community in general.

2-2-4 Medical professionals and paramedics

In Pakistan the number of doctors is 33,584 and the population per doctor is 4,600. These doctors are seriously maldistributed: while the ratio of populations between rural and urban areas is 7:3, that of doctors is 1:8. In addition there are still many vacant posts for female doctors in rural areas in spite of the government's policy of placing both male and female doctors in these areas.

Of all the doctors, about 6,125 are medical practitioners and its number is growing at a rate of 500 annually. While most of medical practitioners stay in cities, few practice medicine in rural areas.

There are traditional medicine men, besides doctors who received the formal education, and they cover the dearth of modern medicine.

The number of qualified and unqualified practitioners of traditional medicine is estimated to be about 51,000. The government gives due respect to traditional medicine and incorporates it in the nationwide health service network.

While 10,554 nurses had been trained by 1982, only a half of them or 5,500 are at work. The number of beds per nurse is 6.4, which is far from sufficient for the increasing number of beds. Other health personnel are approximately: 2,500 health visitors, 5,300 midwives, 110 medical technologists, 400 medical technicians, 300 sister-tutors, 550 ward administrators, 200 physiotherapists, 17,300 dispensers, 200 sanitary inspectors, 1,600 malaria pharmacists, 300 rural health inspectors, and 350 medical assistants.

Medical and Health Personnel in Pakistan

Category	Number
Doctors	33,584
Dentists	999
Nurses	10,554
Lady Health Visitors	2,562
Midwives	5,275
Nurse midwives	5,072
Sister Tutors	290
Ward Administrators.....	535
Medical Technologists	115
Physiotherapists	191
Dispensers	17,370
Sanitary Inspectors.....	1,974
Malaria Inspectors.....	1,601
Pharmacy graduates	1,743

Source: Annual Report of the Director
General Health, 1984

2-2-5 Education system and medical educational facilities

While general education is in the charge of the Ministry of Education, medical and paramedical education is the responsibility of the Ministry of Health, Special Education and Social Welfare.

1) General education

General education consists of five years in elementary school, which is free and compulsory for children aged 5 to 9, three years in junior high school, two years in senior high school, and then either vocational school or college which offers courses in liberal arts, sciences and other specialties.

University is the highest educational institution offering two to six years of education. The number of elementary school pupils is 6.8 million which constitutes 48% of the children of school age. The government, therefore, is spending more than

30% of the whole educational budget on the elementary education. Efforts are specifically directed to the improvement of the enrollment rate for girls in rural areas, which is strikingly lower than that in urban areas. Thus the government has set one of the aims of the Sixth Five Year Plan (1983 ~ 1988) at increasing the number of enrolled pupils to 12.3 million and the enrollment rate to 75% by 1988.

Primary Education Indices

	1982-83	1987-88	Absolute increase	% increase
A. Enrollment (In Million)				
Total	6.8	12.3	5.5	81
Rural	4.1	8.3	4.2	102
Urban	2.7	4.0	1.3	48
Boys (Total)	4.6	7.7	3.1	67
Rural	3.2	5.6	2.4	75
Urban	1.4	2.1	0.7	50
Girls (Total)	2.2	4.6	2.4	109
Rural	1.0	2.7	1.7	170
Urban	1.2	1.9	0.7	58
B. Participation and Literacy Rates (%)				
	Participation Rate		Literacy Rate	
	1982-83	1987-88	1982-83	1987-88
Total	48	75	23.5	48
Rural	40	70	15.0	42
Urban	72	95	43.6	62
Boys (Total)	63	90	32.0	49
Rural	58	88	23.3	43
Urban	77	98	51.7	61
Girls (Total)	32	60	13.9	47
Rural	20	50	5.7	40
Urban	68	93	33.9	63

Source: The Sixth Five Year Plan

2) Medical education

The number of medical colleges has grown from 7 to 16 in these ten years and now 4,000 new doctors are annually produced. This rapid increase in medical students, however, has resulted in mass production of doctors in an over-crowded educational environment. And there are many colleges that do not have enough classrooms, laboratories, and other educational facilities. Thus degradation of educational standard is often pointed out. The shortage of beds in teaching hospitals amounts to 8,000, and the education of specialists/professors cannot be kept in pace with that of doctors.

Medical colleges and the numbers of medical students therein are as follows:

List of Medical Colleges & No. of Seats

(1) K.E. Medical College, Lahore	277
(2) F.J. Medical College, Lahore	184
(3) Allama Iqbal Medical College, Lahore	322
(4) Punjab Medical College, Faisalabad	240
(5) Rawalpindi Medical College	240
(6) Nishtar Medical College, Multan	269
(7) Quaid-o-Azam Medical College, Bahawalpur	250
(8) Dow Medical College, Karachi	441
(9) Sind Medical College, Karachi	355
(10) Chandka Medical College, Larkana	313
(11) Liaquat Medical College, Hyderabad	430
(12) Nawabshah Medical College	200
(13) Khyber Medical College, Peshawar	304
(14) Ayub Medical College, Abbottabad	106
(15) Bolan Medical College, Quetta	134
(16) Aga Khan Medical College, Karachi	100
Total	<hr/> 4,165

3) Nursing education

Education of nurses is, like that of medical technologists, very unsatisfactory in terms of its quality as well as its quantity, because of the lack of the training facilities and the social and religious background unfavorable to women. In spite of the fact that the statistics shows registration of 10,554 nurses, only a half of them or 5,500 are at work. This shortage of nursing personnel is a serious problem aggravating the health service. At present there are 44 nursing schools, and 22 of them offer a 3-year nursing course to high school graduates aged 15. After another year of study in midwifery, the students can make an application as registered nurse. At present the number of newly registered nurses is about 840 a year.

The training of rural health visitors is carried out in 10 schools with 600 graduating every year. They are trained in health education for a year and in midwifery for two years. They work chiefly at mother-children health centers (M.C.H.C) after graduation and play an important role in the primary health service. The graduate courses of nursing education can be taken after three years of work as nurse. This consists of a year of study in ward administration and a one-year course for nursing school teachers. Both courses have 44 and 22 postgraduate students respectively and the school is in operation in Karachi.

4) Comedical Education

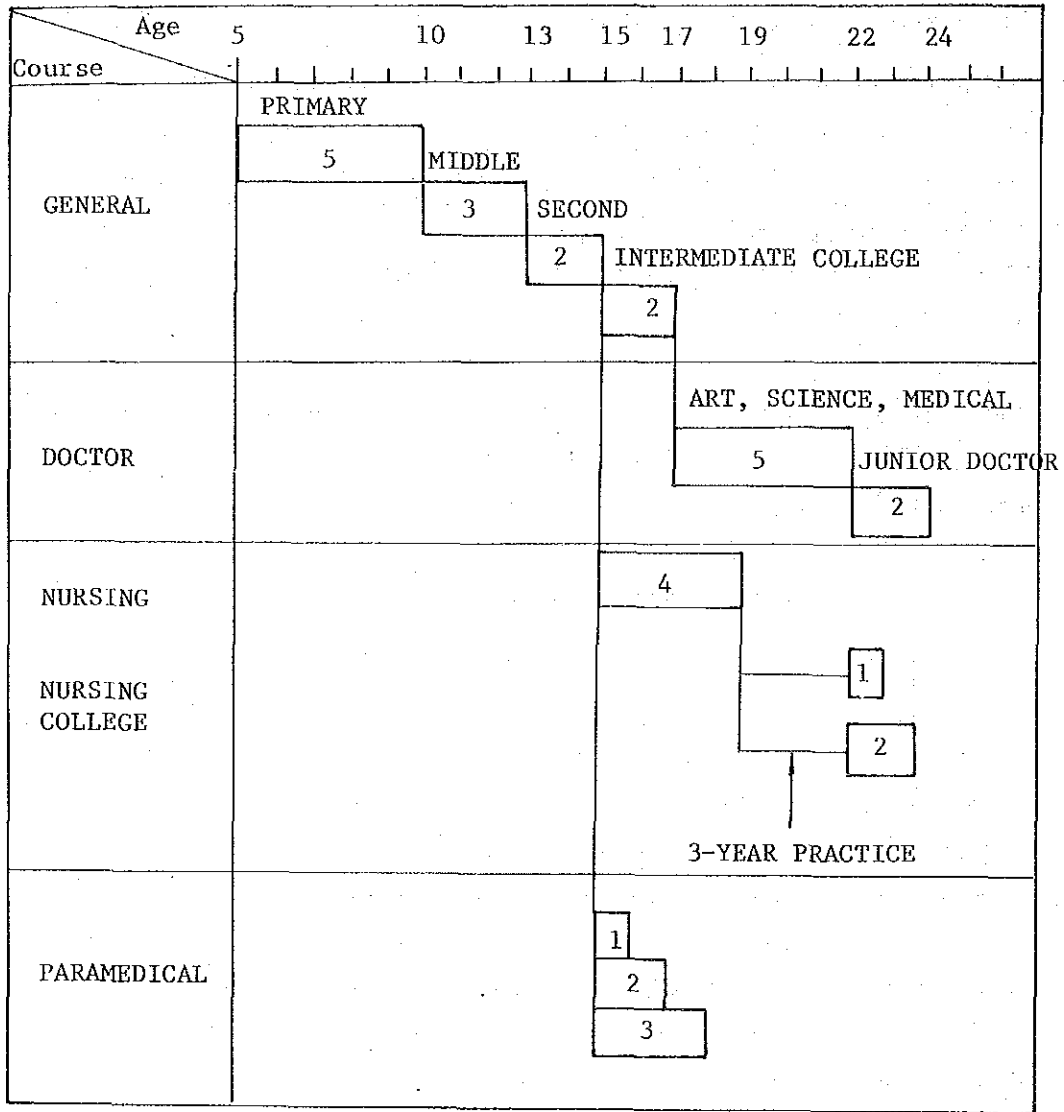
Comedical workers are generally called paramedics. Though there seems to be 37,000 people being engaged in this profession, the training system for them is seriously inadequate. Of the comedical occupations, 600 graduates across the nation are annually given the qualification as pharmacist. As for the training of physiotherapists, Karachi has the School of Physiotherapists, providing three-year courses in electrotherapy, occupational therapy and exercising therapy. The number of students is 20 for each year.

The training of clinical technologists is provided by the School of Medical Technology in Islamabad and by the College of Community Medicine in Lahore. The two-year education consists of the fundamental and advanced studies.

No special schools are provided for X-ray technicians or dietitians. Two years' practice in a hospital qualifies the person for taking the examination, given by the Provincial Medical Association twice a year, then diploma is given successful examinees. Most of the comedicals presently at work, however, only have the on-the-job training at the D.H.Q and the qualification for the examination, but without the diploma.

At present a plan is being developed to construct training schools for nurses and medical technologists within Islamabad Medical Complex through the aid from Japan.

Education System in Pakistan (General & Medical)



2-3 DEVELOPMENT PROGRAMS

2-3-1 Outline of economic development program

Pakistan's five-year plans for economic development have reached its sixth stage (1983 - 1988).

The basic objects of these plans are to improve the nation's living standard and to provide its people with better public services.

The Third Plan (1965-1970) was focused on the renovations to achieve social justice, the Fourth (1972-1977) on the nationalization of industries, and the Fifth (1978-1983) on the restoration of economy to stability and development. Opinion may vary as to the appraisal of the results so far achieved, but it may safely be said that Pakistani economy is acquiring a steady pattern of development, though the country is still burdened with a huge deficit in its international payments.

Annual Growth Rates of GDP and GNP

	Fifth Plan (1978-83)	Sixth Plan (1983-88)
Agriculture	4.4	4.9
Major Crops	(4.8)	(3.6)
Minor Crops	(3.1)	(7.0)
Others	(4.3)	(6.0)
Manufacturing	9.0	9.3
Large Scale	(9.7)	(10.0)
Other Sectors	6.0	6.4
GDP (FC)	6.0	6.5
GNP (FC)	6.3	6.3

Source: The Sixth Five Year Plan

GNP at Market Prices

(Current Billion Rs.)

	1982-83	1987-88	1983-88	Annual Growth Rate during Sixth Plan	
				Nominal	Real
GDP (FC)	329.8	619.1	2442.9	13.4	6.5
Indirect Taxes less Subsidies ..	38.2	72.9	286.2	13.8	6.8
GDP (MP)	368.0	692.0	2729.1	13.5	6.5
Net Factor Income	33.0	55.9	228.8	11.1	4.3
GNP (MP)	401.0	747.9	2957.9	13.3	6.4

Source: The Sixth Five Year Plan

1) The Sixth Five-Year Plan

The National Economic Council (NEC) announced the outline of the Sixth Five-Year Plan (July, 1983-June, 1988) which is to succeed to the Fifth Plan (July, 1978-June, 1983).

The Sixth Five-Year Plan aims at a sound investment: the budget expenditure is increased on the nominal price basis from 16% to 18% of GHP. The plan depends on the contribution by the private sector while the public sector is to concentrate its efforts on the development of the infrastructures for energy, transportation, hygiene and education. The total expenditures for the development programs amount to 49.5 million Rs., which is divided between 20 million Rs. for the private and 29.5 million Rs. for the public sectors.

Compared with the corresponding expenditures for the Fifth Five-Year Plan, the present sum is greater by 109% in the nominal and by 49% in the real terms. The annual inflation rate is estimated at 6 to 6.5% during the plan period.

The plan focuses on the improvement of rural life. Some of the immediate targets are the increase in the literate population from 13.9 million to 33 million and that in the number of the primary education enrollment from 7 million to 12.3 million.

Supply of potable water will be expanded from 38% to 60%, sewerage provision from 16% to 20%, and electricity supply from 38.8% to 52.9% of the population.

2) Foreign aid

The Consortium meeting held in Paris on April 18 and 19, 1983, decided to offer 1,406 million dollars, including 380 million dollars for non-developmental aid, for 1983. Then on December 7 and 8, 1983, another meeting of the Consortium was held in Paris to discuss Pakistan's Sixth Five-Year Plan. Pakistan requested for a gross aid inflow of 10,000 million dollars and a net aid inflow of 6,000 million dollars for the plan period between 1983 and 1988. On the other hand, a loan of 3.36 million yen to Pakistan, consisting of 21,736 million yen as the project loan and 8,300 million yen as the merchandise loan, was agreed on and the contract was concluded with the exchange notes on November 10, 1983.

2-3-2 Outline of health service program

Executing the Sixth Plan (July, 1983-June, 1988), the Pakistani government aims at extricating the country from poverty and gaining the momentum for economical and social development by securing the opportunities for education and health care to its people. Thus it is carrying out various policies to improve the health service.

1) Health service program in the Sixth Plan

Establishment of the nation-wide comprehensive system for health service is urgently needed to improve the quality of life.

The capital expenditure and revenue budget allotted to the health sector are considerably increased. The total capital expenditure amounts to 13,000 million Rs., nearly three times as much as the 4,580 million Rs. for the Fifth Plan.

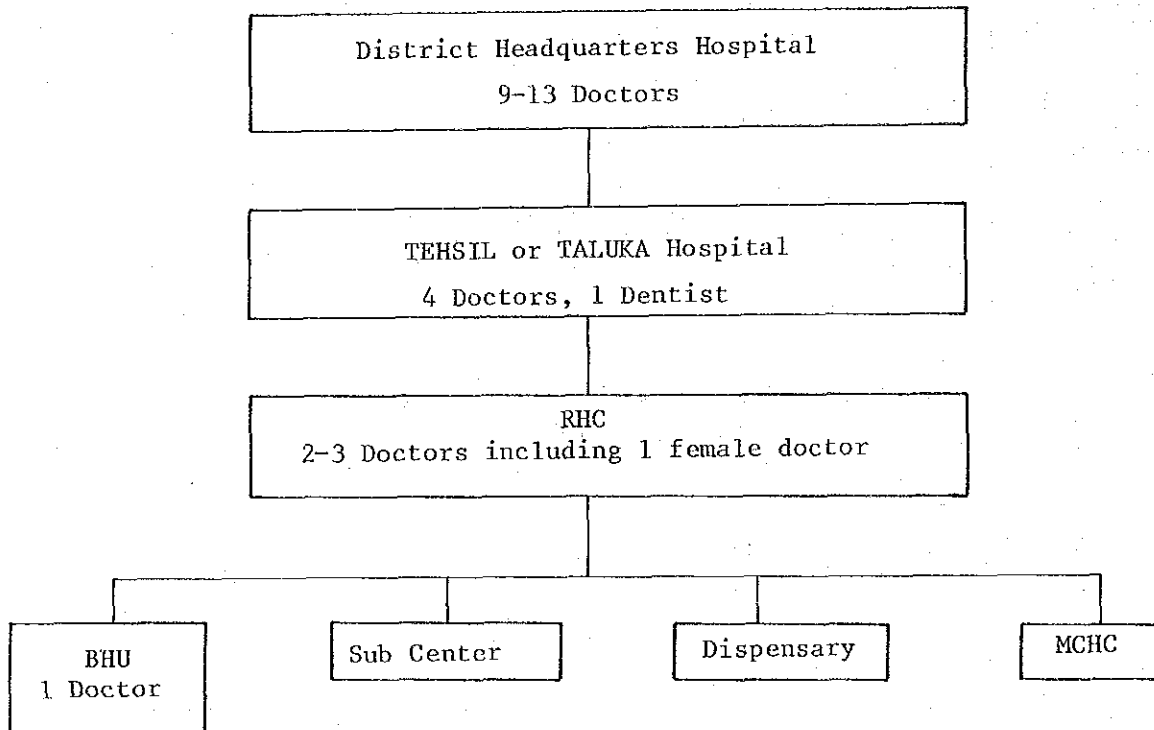
- 2) The objectives to be attained in the program
 - (1) Reduction of crude mortality, from 12 to 10 per 1,000 population,
 - (2) Reduction of infant mortality, from 100 to 60 per 1,000 live births,
 - (3) Prolongation of life expectancy, from 54~55 to 60 years and over,
 - (4) Reduction of the incidence of communicable diseases, from 30% to a negligible level,
 - (5) Protection of all children and newborn infants from six childhood diseases (diphtheria, whooping cough, tetanus, polio, measles and tuberculosis),
 - (6) Elimination of third degree malnutrition among children,
 - (7) Provision of assistance in every delivery by trained attendants,
 - (8) Best possible prevention of disability and care of the disabled for better lives.
- 3) Policies to achieve the foregoing objectives
 - (1) Emphasis on preventive care for children by poly-immunization and on improved maternal care,
 - (2) Consolidation of existing facilities in rural areas and establishment of health service system in unserved areas,
 - (3) Staffing a qualified doctor to each rural health facility,
 - (4) Introduction of double shift in the outpatient departments of all teaching, district, and tehsil/taluka headquarters hospitals,
 - (5) Freezing of seats in medical colleges and laying stress on quality to match quantity,
 - (6) Prevention of disabilities and rehabilitation of the disabled,
 - (7) Government patronage to traditional medicine,

- (8) Involvement of community in primary health care,
 - (9) Adequate management training to health service personnel,
 - (10) Introduction of users' charges to reduce subsidy,
 - (11) Rapid expansion and fostering of the private sector.
- 4) Measures to provide the nation-wide health service system

The Sixth Plan will provide a systematic link of health service between all the rural communities and the central institutions with modern medical facilities. To attain this goal, the measures to be taken will include:

- (1) Establishing basic health unit (BHU) for every 5,000 to 10,000 population,
- (2) Providing BHU's with such functions as midwifery, child care, immunization, diarrheal diseases and malaria control, child spacing, mental health, school health and visiting services for maternal and child health care by trained birth attendants,
- (3) Establishing a rural health center (RHC) for every 5 to 10 BHU's. Each RHC may have up to 25 beds, as well as laboratory, X-ray and minor surgery facilities,
- (4) Subordinating RHC's under a district headquarters hospital through tehsil/taluka hospitals,
- (5) Providing district headquarters hospitals with all the medical facilities sufficient to meet the needs of the subordinate institutions,
- (6) Upgrading such existing facilities as dispensaries and maternal and child health (MCH) centers to BHU's.

Health Service System in Pakistan



Health Financial Allocations 1983-88

		(Million Rs.)						
S.No.	Sub-Sector	Federal	Provincial	Punjab	Sind	NWFP	Baluchistan	Total (Col. 3+4)
1	2	3	4	5	6	7	8	9
1.	Rural Health Programme	822	4,838	2,715	854	883	386	5,660
2.	Preventive Programmes	1,231	259	155	42	25	37	1,490
3.	Hospital beds including Teaching Hospitals	1,457	1,838	601	578	310	349	3,295
4.	Health ment	53	922	598	247	57	20	975
5.	Medical Research	85	-	-	-	-	-	85
6.	Miscellaneous Programmes	44	76	44	18	14	-	120
7.	Nutrition Programme	250	-	-	-	-	-	250
8.	Dental Care	20	230	115	60	40	15	250
9.	Traditional Medicine	223	152	88	35	21	8	375
10.	Programmes for Disabled (Block allocation)	500	-	-	-	-	-	500
	Total..	4,685	8,315	4,316	1,834	1,350	815	13,000

Source: The Sixth Five Year Plan

The budget is distributed with particular emphasis on the establishment of the health service system in rural areas and an increase in hospital beds and health personnel.

Change in Population per facility, 1988

Facility	Benchmark 1983	Population per facility	End Posi- tion 1988	Population per facility	Japan 1982
Infrastructure :					
(i) Hospital beds	51,400	1,790	63,170	1,678	
(ii) Rural Health Centres ..	374	172,241	729	101,133	
(iii) BHUs/Sub Centres/Dis- pensaries/MCH Centres..	6,490	12,943	9,090	9,820	
Manpower :					
(i) Doctors	20,000	4,600	36,000	2,940	707
(ii) Dentists	1,100	83,000	1,700	62,350	2033
(iii) Nurses	5,530	1/6.4 beds	10,000	1/5 beds	1/3 beds
(iv) Paramedics	37,000	2,486	75,000	1,413	881
(v) TBAs	15,000	1/3 villages	45,000	1/village	

Source: The Sixth Five Year Plan

Expected are: an increment of 11,770 in hospital beds, about twice as many RHC's, an increment of 16,000 in the number of doctors, and about twice as many paramedics. These figures, however, are by far insufficient as compared with those for Japan.

CHAPTER 3.
CONTENT OF REQUEST

3-1 OUTLINE AND PURPOSE OF THE PROJECT

3-1-1 Purpose of the Project

Faisalabad has a population of approximately 1.5 million, and is the third largest city after Karachi and Lahore. Yet the city has had to depend almost solely on the District Headquarters Hospital (D.H.Q., 650 beds) for medical service.

Its ever-increasing population, on the other hand, has exacerbated the longstanding shortage of hospital beds and health service personnel to a most serious degree.

The Health Department, the Government of the Punjab, therefore, decided to construct Punjab Medical College along with its hospital in Faisalabad in order to educate medical personnel and to provide better medical service to the area.

Of this comprehensive project, the college buildings have already been completed and successfully put to educational use for medical and nursing students, with the D.H.Q. as its tentative teaching hospital.

The Project will be in full operation when the construction of the ward and diagnostic facilities is completed and all the equipment is furnished, eliminating the shortage of medical personnel and improving the medical service.

3-1-2 Outline of the Project

Of the equipment requested by the Government of the Punjab, as listed in PC-1, those to be installed in the Outpatient and Radiology Departments are excluded from the present Project as the construction of these blocks has not yet been started.

The following list of equipment was prepared on the basis of PC-1 in cooperation with Pakistani officials concerned. The items listed are designated as either included in the present project or not. The reason for exclusion is given for each item excluded.

Departments	Blocks	Included/ Excluded	Reasons for exclusion
Ward I, 400 beds	<ul style="list-style-type: none"> • O.R. • Obstetrics (Delivery, Newborn) • Patient rooms • Autopsy 	<ul style="list-style-type: none"> In. In. In. Ex. 	Already provided in College
Service	<ul style="list-style-type: none"> • Laundry • Incinerator • Dietary • Independent power plant • Drug & supply storage 	<ul style="list-style-type: none"> In. In. In. In. In. 	
Diagnostic	<ul style="list-style-type: none"> • Blood bank • O.R. (Endoscopy) • Emergency (ICU) • Radiology • Laboratories • Central Supply • Pharmacy 	<ul style="list-style-type: none"> In. In. In. Ex. In. Ex. Ex. 	<p>Construction not started</p> <p>To be provided by Sweden</p> <p>" "</p>
Outpatient	<ul style="list-style-type: none"> • Rehabilitation • Dentistry • Gynecology & Obstetrics • E.N.T. 	<ul style="list-style-type: none"> Ex. Ex. Ex. Ex. 	<p>Construction just started</p> <p>" "</p> <p>" "</p> <p>" "</p>
Irradiation & R.I.		Ex.	Construction not started
Ward II, 400 beds		Ex.	Under construction
Private ward, 100 beds		Ex.	Construction not started
College buildings		Ex.	Already in operation

Other items excluded from PC-1 or reduced in number are as follows:

Equipment	Alterations	Reasons
Beddings (pillows, sheets, Pillow-cases)	Ex.	Available in Pakistan
O.R. X-ray apparatuses, pendant type	Ex. (2)	Portable type provided
Surgical kits ICU beds	Red. 12 → 8	Needs re-assessed Space not adequate
Shadowless lamp for obstetrics	Red. 4 → 3	1 unit provided by France
Automobiles	Ex. (4)	Incongruous to purpose of aid
Ambulances	5 → 3	In view of expected no. of patients & area to be served
Patient Management System	Ex.	In view of soft ware & medical care level
Laser Coagulation	Ex.	In view of medical care level

The items to be added to PC-1 as essential for the function, size and safety of the college hospital are as follows:

Equipment	No.	Reasons
TV monitoring system 2 O.R.'s → 2 classrooms	2	Necessary for educational purposes
Hand-washing facilities	18	Indispensable in infection control
Shielding screens against X-ray exposure	4	Indispensable in protection of technicians as no separate control room provided
Recovery beds	18	As estimated from no. of operations
Apparatuses jointly used in wards & O.R.'s	1 set	Necessary in operation & treatment
Consumables	1 set	Indispensable in smooth administration
Dumbwaiters for central supply & dietary	2	Indispensable in food service 1F-4F
Stabilizers	1 unit	Safeguard against power failure & instability

3-2 SIGNIFIANCE OF THE PROJECT IN HEALTH SERVICE PROGRAM

Since its independence in 1956, Pakistan has carried out health care programs as part of its five-year plans.

What has been achieved, however, falls far short of their targets.

In the Sixth Plan, therefore, efforts are directed to the improvement of health care situation so that all the people can enjoy good health and that social and economic development will be accelerated.

The present Project, an integral part of the plan, represents an answer to the request for assistance by furnishing Punjab Medical College with medical equipment.

The college will be the medical center in the Faisalabad District and is expected to contribute to improvement of health personnel training and of the health and welfare of the community as well.

3-3 OUTLINE OF MEDICAL INSTITUTION TO BE FURNISHED UNDER THE PROJECT

3-3-1 Health care situation in Faisalabad

The Faisalabad District is the location of Punjab Medical College for which the present request of assistance was made. It is one of the 21 Districts in the Punjab Province, some 150 km to the southwest of the provincial capital Lahore. Its population is approximately 4,650,000, of which 1,420,000 live in the city and 3,230,000 in rural areas. The city of Faisalabad is the third largest city in the country.

The sharp rise of its population from 1 million in 1975 has led to aggravation of the health situation in Faisalabad, beginning with the serious shortage of hospital beds by presumably 1,100 and deplorably inadequate medical care.

The only general hospital the district has is the D.H.Q. hospital with 650 beds, which also serves as the teaching facility for Punjab Medical College.

If a patient in Faisalabad needs more complicated or highly technological medical care, he or she must be transferred to the hospital in Lahore. This clearly illustrates the status quo of the health service in Faisalabad. Some facts from the health-related statistics on the Faisalabad District are as follows:

The table on the next page shows the number of health facilities and personnel in the district as of January, 1985. There are 1,468 beds and 1,324 health workers in operation. According to the statistics for 1981, 46,493 inpatients and 1,347,883 outpatients were treated during the year: annual mortal cases amounted to 1,131, with a mortality of 2.4%. These figures must have increased by now in proportion to the population increase.

List of Hospitals in Faisalabad District

No.	Names of Hospitals	Total Beds	Total Staff Strength
1.	D.H.Q. Hospital, Faisalabad	650	406
2.	National Hospital, Faisalabad	70	38
3.	Mian Trust Hospital, Faisalabad	100	110
4.	Railway Hospital, Faisalabad	12	50
5.	Saint Raffle Mission Hospital, Faisalabad	120	84
6.	Aziz Fatima Trust Hospital, Faisalabad	110	120
7.	T.B. Hospital, Faisalabad	70	28
8.	M.C. Hospital, Faisalabad	25	28
9.	Social Security Hospital, Faisalabad	75	100
10.	Police Hospital, Faisalabad	16	4
11.	Al-noor Hospital, Faisalabad	24	22
12.	Faisal Hospital, Faisalabad	40	22
13.	Maki Hospital, Faisalabad	40	25
14.	Civil Hospital, Sammundri	20	10
15.	Civil Hospital, Tandlianwala	16	5
16.	Civil Hospital, Jaranwala	28	5
17.	Rural Health Centres (8 Nos.)	52	267
	Sub- Total beds & Staff	1,468	1,324
18.	New Punjab Medical College, Allied Hospital, Faisalabad	850	1,611
	Grand Total	2,318	2,935

Number of Patients Treated in Medical Facilities in Punjab in 1981

	Punjab			Faisalabad		
	Number of out-patient	Number of in-patient	Deaths	Number of out-patient	Number of in-patient	Deaths
	1. Diseases of the Circulatory System	98,116	9,568	1,244	12,782	606
2. Deficiency Diseases	167,597	3,769	97	16,268	234	3
3. Diseases of Blood and Spleen	414,073	5,399	205	39,776	463	4
4. Diseases of Gastro Intestinal	1,214,081	46,122	1,570	116,108	4,296	122
5. TB of All Forms	265,511	23,511	1,130	26,773	1,323	51
6. Diseases of Ear and Nose	687,253	6,764	16	78,007	1,305	—
7. Diseases of Eye	976,647	66,793	25	99,057	6,492	2
8. Water Borne Diseases	1,380,601	25,379	1,090	125,981	2,948	152
9. Parasitic Diseases	241,092	1,522	1	17,668	232	—
10. Malaria	540,113	3,935	6	55,673	613	—
11. Respiratory Diseases	2,249,017	20,518	843	240,326	2,521	84
12. Infections/Communicable Diseases	164,974	6,686	305	24,211	837	34
13. Typhus Fever	2,517	37	1	416	—	—
14. Tumours	56,974	8,786	438	9,983	1,409	13
15. Fever	1,565,168	23,108	625	137,094	3,094	153
16. Diseases of Nervous System	325,174		804	32,504	1,496	40
17. Dental Diseases				25,348	63	—
18. Endocrinal Diseases	55,779	5,076	244	6,895	977	84
19. Diseases of Bones, Joint Muscles, Lisci and Bursae	467,759	10,497	128	53,813	549	4
20. Diseases of Genito-Urinary Tract	688,639	73,900	1,765	57,820	5,500	65
21. Diseases of the Skin and Areolar Tissue	1,114,462	9,198	200	95,815	891	1
22. Injuries, General and Local	766,036	64,464	1,666	61,092	3,420	159
23. Diseases of Lymphatic System	58,524	3,232	102	3,612	117	5
24. Poisoning	31,701	3,466	141	1,684	198	14
25. Labour cases	16,065	51,265	399		4,528	50
26. Diseases of Newborn Infants	12,747	10,588	299	3,604	2,059	67
27. Other Diseases	115,727	6,272	379	5,573	322	—
Total	14,198,901	506,709	13,734	1,347,883	46,493	1,131

Source : Statistics of Hospitals and Dispensaries, etc. in the Punjab, 1981

On the basis of the foregoing data, it may be concluded that provision of health service in the Faisalabad District is definitely below the standard, as both numbers of beds and health personnel per population are only half as many as the national averages. Yet judged from the present mortality alone, a certain level of medical care seems to be maintained by the existing facilities. The distribution of the causes of deaths also suggests that the health condition of the community is on the way to modernization as the incidence of infections and parasitoses is relatively low.

Beds and Doctors Population Ratio

Ratio	Pakistan	Punjab	Faisalabad	Japan
Population/bed	1,790	2,386	4,113	85
Population/ doctor	4,600	8,300	3,512*	707

* Population/Medical Manpower

Source: The Sixth Five Year Plan

Health and Health Related Statistics
in Japan, 1984

Major Diseases & Causes of Deaths in Faisalabad District

Major Diseases	Major Causes of Deaths
Respiratory Diseases	Injuries, general and local
Fever	Fever
Water Borne Diseases	Water Borne Diseases
Gastrointestinal Diseases	Gastrointestinal Diseases
Diseases of the Eye	

3-3-2 Outline of Punjab Medical College

Punjab Medical College was established to meet the needs of the district and to serve the purpose of the medical education program.

In 1978, it started training its first students in a building of Agricultural College near by. During the period between 1980 and 1983, 602 students passed the final examination for M.B. and B.S. (See References at the end of the report). The college offers five-year education and has an enrollment of 1,465 medical students at present.

The construction of the school buildings was started on the new campus in March, 1978, under an eight-year project. The administration of the college has also been transferred to the new campus.

The school site is in the eastern suburbs of Faisalabad, with a flat, rectangular tract of land with an area of 785,000 m².

The place has a favorable environment and good access to serve as the college campus. When the present survey was made in January, 1985, the construction was still under way. Almost completed at the time were: college buildings, students' dormitories, part of the staff housing, bank, telephone switchboard room, Ward I (400 beds) and service block.

The construction of the diagnostic block was also vigorously being carried on so that the work will be completed by the middle of March, 1985. The college authorities hope to accomplish this eight-year project and to provide the school with spacious buildings and sufficient equipment adequate for the medical education and health service it offers.

In the meantime they are studying the possibility of early construction of the blocks for outpatient and radiotherapy services, private ward (100 beds), Ward II (400 beds), and nursing and paramedical training schools.

The present Project is called "Establishment of Punjab Medical College, Faisalabad." The details of the Project are as follows:

Authorities in charge : Health Department, Government of the Punjab

Sponsoring : Ministry of Health, Special Education & Social Welfare, Government of Pakistan

Execution : Buildings-Health Departments, Government of the Punjab

Consultant : Lahore Technical College

Project Director : University of Engineering and Technology, Lahore

Construction started : March, 1978

in

Time required for completion : Eight years (96 months)

The budget allotted to this Project amounts to 78,535,000 Rs. as of February, 1983.

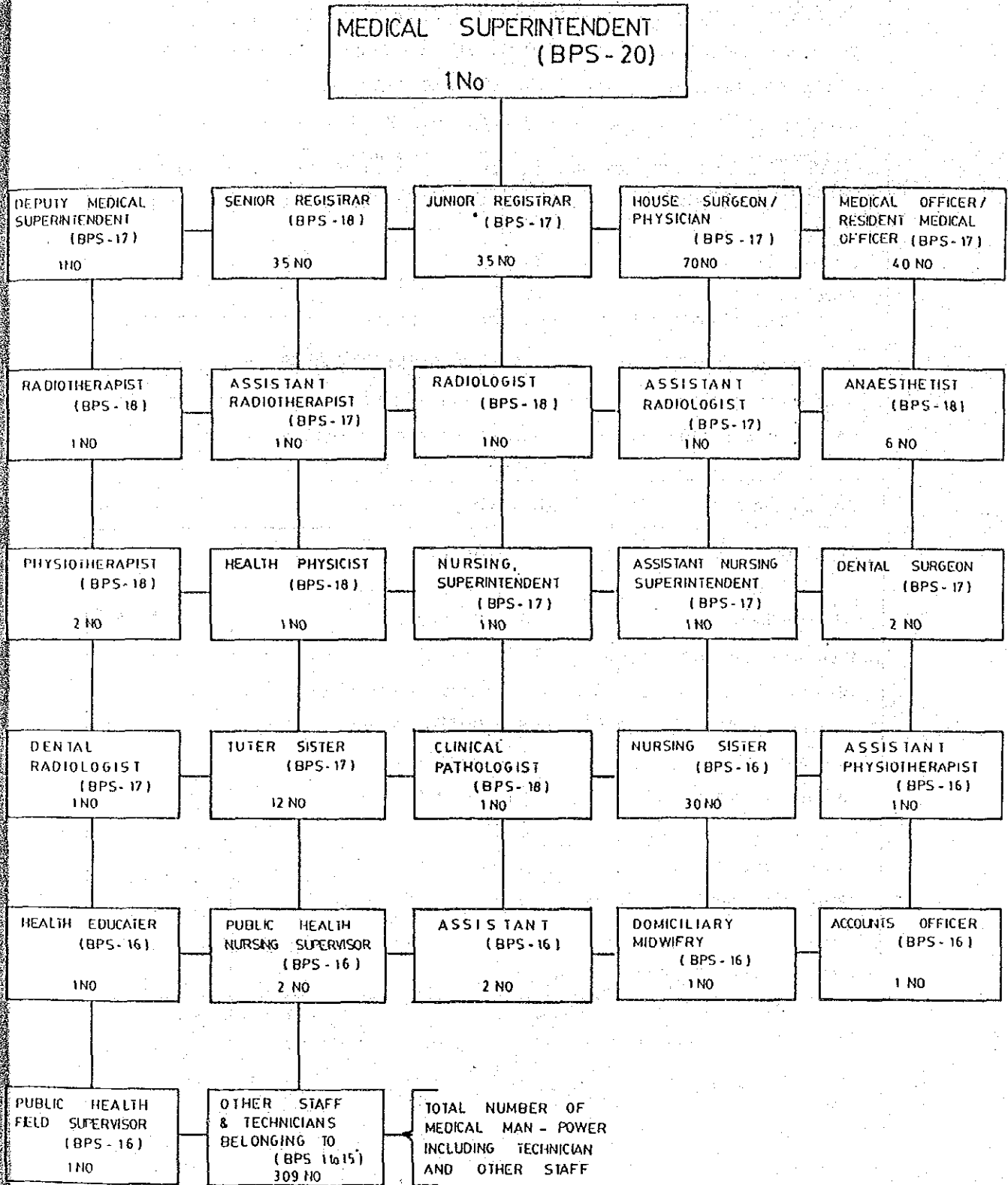
Year	Expenditure
1977-78	1,512,000
1978-79	12,000,000
1979-80	11,200,000
1980-81	15,200,000
1981-82	21,034,000
1982-83	17,589,000 Up to 2/83.
Total;	78,535,000

Source: Punjab Medical College

The details of the construction and its progress are summarized as follows:

Departments	Progress of work	Total area (sq.ft.)
<u>College Buildings</u>		
Administration block	Completed	
Basic medical sciences	"	
Students' laboratory/ auditoriums	"	
Library	"	218,757
<u>Housing</u>		
Nurses' dormitory (capacity: 300)	Not started	
Docotors/college staff	1/10 of 830 completed	
Students' dormitories (boys & girls)	600 of 1,022 completed	541,476
<u>Hospital Buildings</u>		
Ward I (426 beds)	Completed, Jul., 1984.	176,700
Services	Completed, Jun., 1984.	21,400
Diagnostic (blood bank, O.R.'s, emergency, radiology, labs, central supply, pharmacy)	To be completed, Mar., 1985.	47,418
Ward II (400 beds)	To be completed, Aug., 1986.	243,845
Outpatient	To be completed, Mar., 1986.	65,000
Private ward (100 beds)	To be completed, Feb., 1986.	65,000
Radiotherapy	Not started	14,400
Nursing school	Not started	15,820
<u>Auxiliary Buildings</u>		
Cafeteria/post office/bank	Completed	6,649
Telephone switchboard room	"	4,608
Mosk	"	8,010

**Chart of Organization of New Punjab Medical College
Hospital, Faisalabad (850 Beds)**



The specialties and beds to be provided by Punjab Medical College Hospital at completion will be as follows:

Departments	Number	Departments	Number
Internal Medicine	120	T.B. & Chest	30
Gynec./Obstetrics	120	Dermatology	30
Surgery	120	Neurosurgery	30
Pediatrics	30	Radiotherapy	30
Ophthalmology	80	Casualty Ward	30
E.N.T.	80	Private Rooms	100
Orthopedics	30		
Psychiatry	20	Total	850 beds

The teaching staff of the college consists of professors, associate professors, assistant professors and demonstrators. The departments included and the size of their staff are as follows:

Departments	Number	Departments	Number
Anatomy	20	Anesthesia	2
Physiology	9	T.B. & Chest	1
Biochemistry	8	Orthopedics	1
Pharmacology	11	Psychiatry	1
Pathology	20	Radiology (Diagnostic)	1
Community M.	8	Radiotherapy	1
Forensic M.	3	Dentistry	1
Internal Medicine	9	Dermatology	1
Surgery	8		
Pediatrics	3	Total	117
Ophthalmology	3		
E.N.T.	3		
Gynec./Obstetrics	3		

Infrastructure Building Condition

Water supply:

The college has an independent water-purifying facility in its own premises. The water taken directly from the river is stored in the reservoirs, filtered and disinfected. So it always comes in a safe and good quality compared to the city water.

The criteria for water quality are more demanding than those for the city water and it is always under the supervision of the Provincial Sanitary Department as the facility is controlled by the provincial government.

The piping to all the rooms has already been finished, but smaller modifications are still possible.

Drainage:

Sewage is collectively processed within the college premises and will cause no contamination or other problems. Piping has already been completed for the Ward I.

Electricity:

The transducer plant has already been constructed to supply electricity to the college hospital. The plant will have a capacity of 1,260 KVA when the construction of the first and second periods is completed.

Buildings	Supply & Capacity
Service Block	200A
Ditto	200A
Nursing Unit 1	600A
Emergency Panel	200A
Ditto	400A
Nursing Unit 2	600A

Furthermore, the plant has two circuits of 200A in reserve and an ample additional capacity is available from the transducer to cover emergency need. Electric power is supplied at 30 ϕ 400V and 10 ϕ 230V in Pakistan, and its standard is equal to the British one.

The electricity supply in Pakistan is extremely poor, and the supply is suspended at night according to a schedule. This is a result of the insufficient network of electricity supply and inefficient power plant incapable of catching up demand. These problems are too huge to be solved in a short period of time. The terminal voltage drop can be as much as 20% and most electric apparatuses are equipped with stabilizers.

According to Lahore University of Engineering and Technology and the Punjab Construction Department, electricity is collectively supplied to the college and distributed to the hospital. Thus the voltage drop at the hospital is always less than 10%.

Electric wiring has almost been completed for the Ward I. Such rooms to bear a large electric load as radiology rooms are equipped with an independent switchboard.

Buildings:

Buildings are of R.C. make: the walls are laid with bricks, as this is a popular practice in Pakistan. Each ward is, as a provincial government's property, designed to have a greater solidity than usual buildings. Thus the installation of heavy equipment will cause no problem to these buildings.

Slab is laid at 1,000 lbs/sft according to Lahore University of Engineering and Technology. Studies of the construction drawings and surveys of the construction field revealed that the structure could endure a load of more than 1 t/m², sufficient to accommodate the medical equipment requested in this project. Thus no drastic modifications seem necessary on the whole, though some smaller alterations or exclusion of the requested items are inevitable due to the inadequacy in the sizes and arrangements of the rooms or of the operating system.

The city gas prepared from natural gas is one of the most inexpensive energy sources in Pakistan.

The storage and unpacking of the equipment delivered will be easily handled as an appropriate space is available within the college premises. The roads within and to the premises are paved.

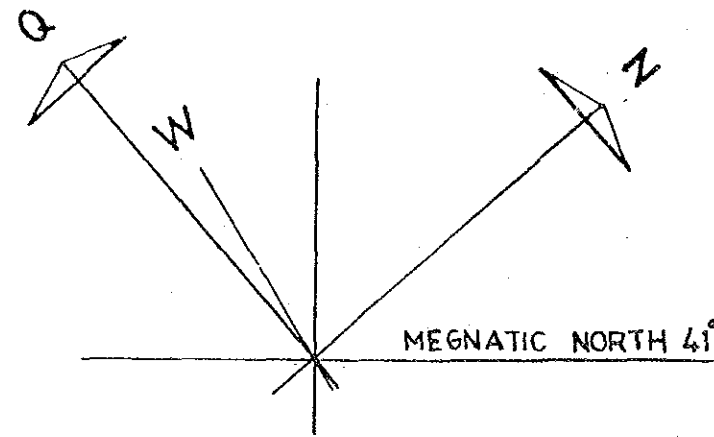
Transportation:

The equipment will be transported: Japan -by sea -Karachi Port -by train or truck - Faisalabad. The time required for the sea transportation is about 20 days and that for the customs clearance about 7 days. The distance between Karachi and Faisalabad is about 1,200km. Both railways and roads are not always satisfactory, so the situation should be taken into account in planning the transportation of the equipment.

A preliminary approval by the authorities of the Pakistani government is required in clearing the customs office.

LAY OUT PLAN OF
PUNJAB MEDICAL COLLEGE
FAISALABAD

SCALE = 1" = 400'



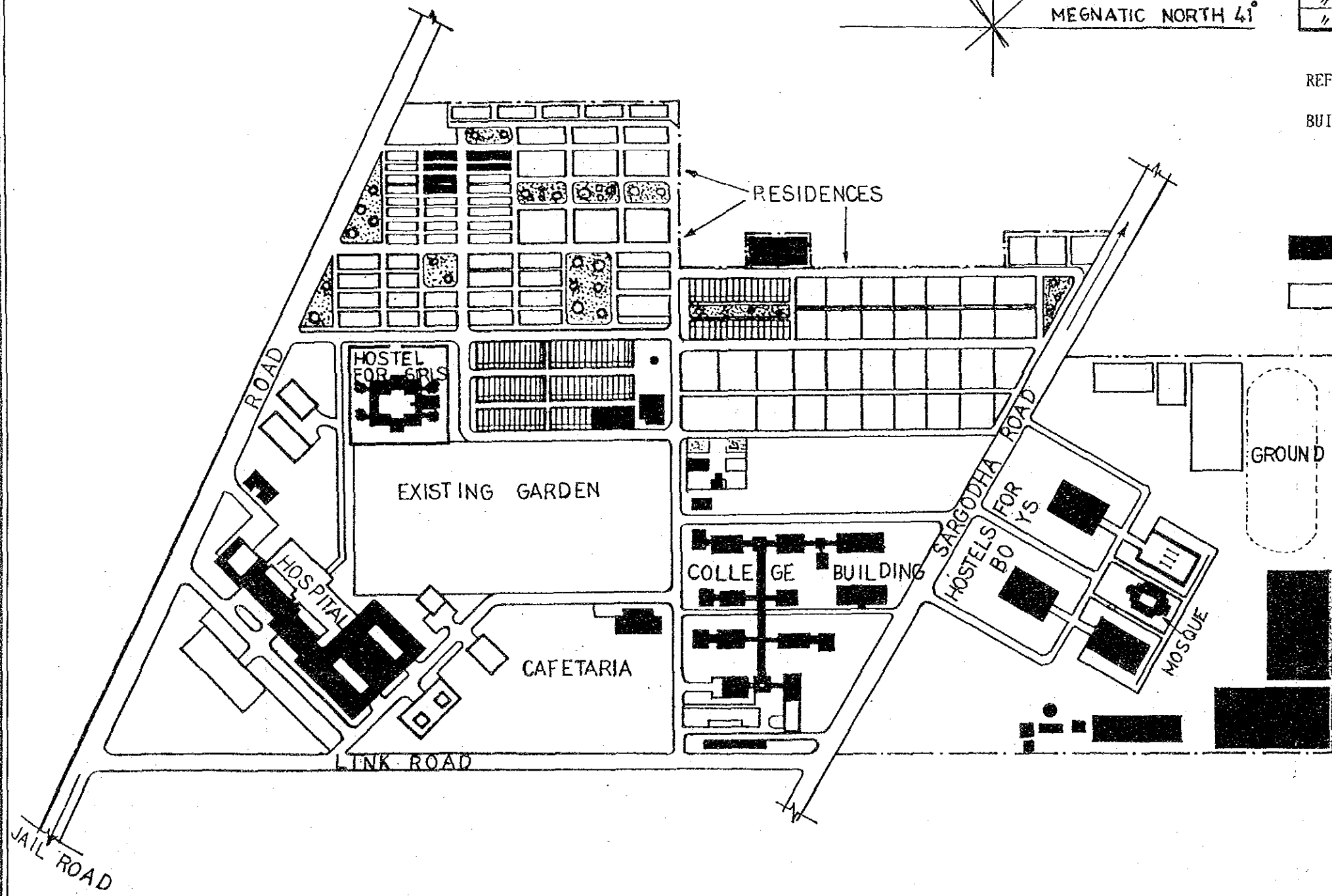
DETAIL OF RESIDENCES

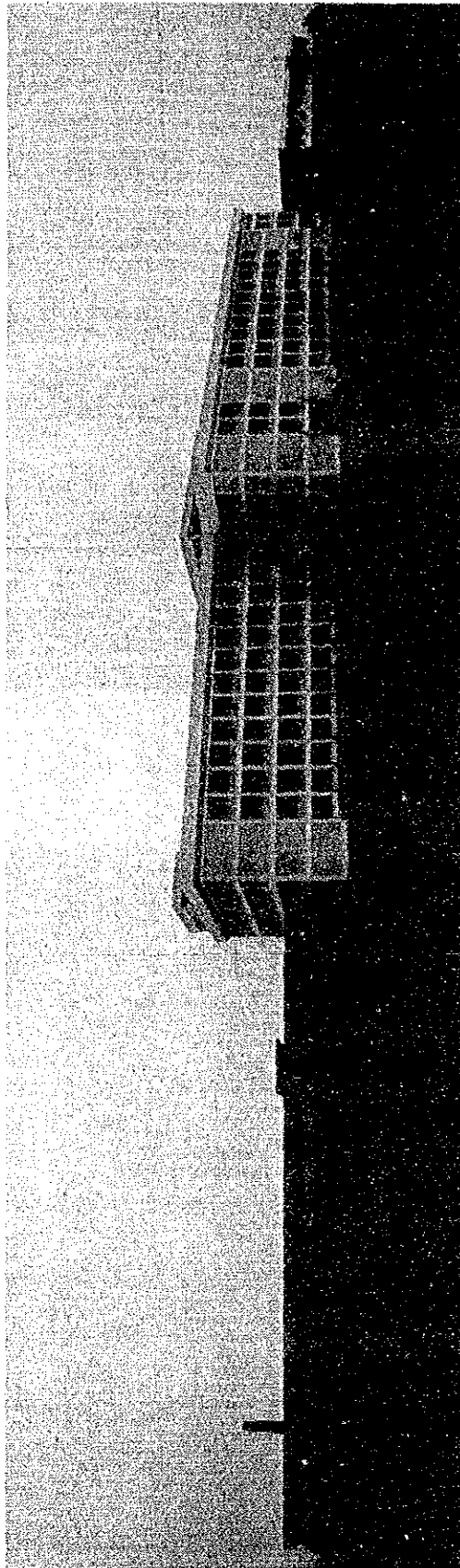
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ASSOCIATE PROF:	18-19	2500 "	44 "
ASSTT PROF:	16-17	1500 "	100 "
CLASS III	11-15	1050 "	16 "
" "	5-10	650 "	120 "
" IV	1-4	430 "	287 "

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" UNDER CONSTRUCTION SHOWN THUS:-

- Completed
- Not Completed

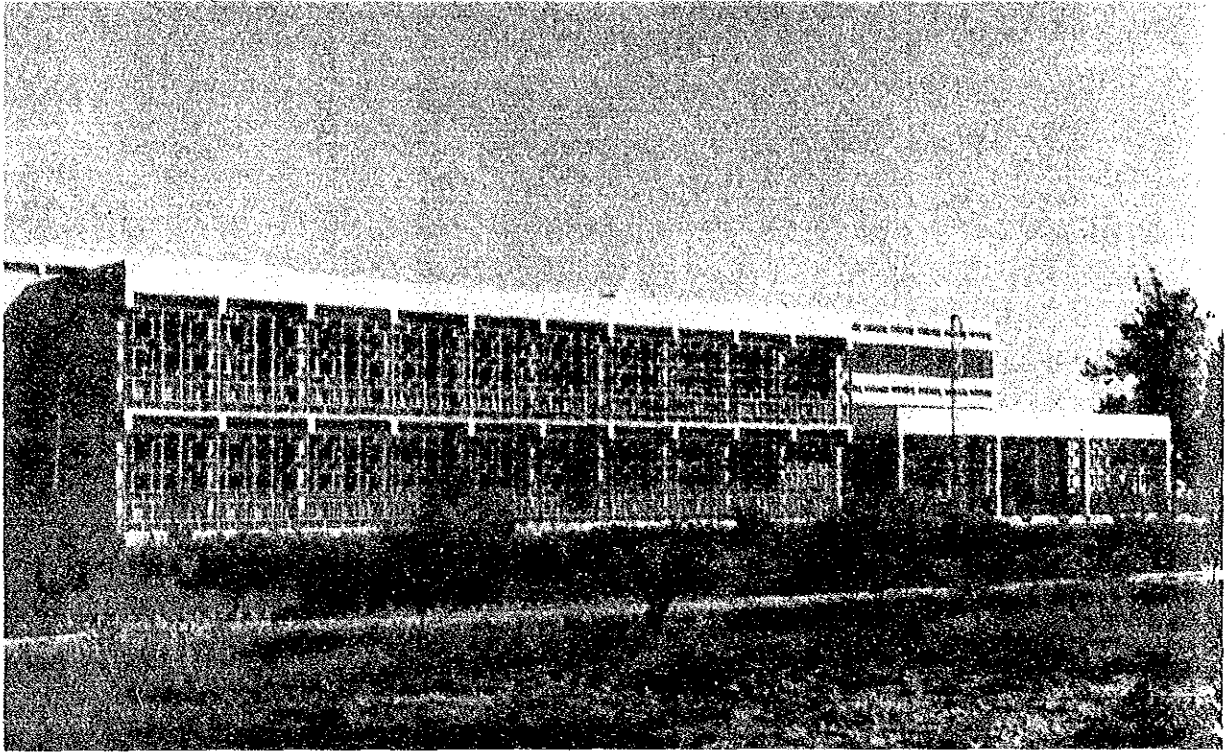




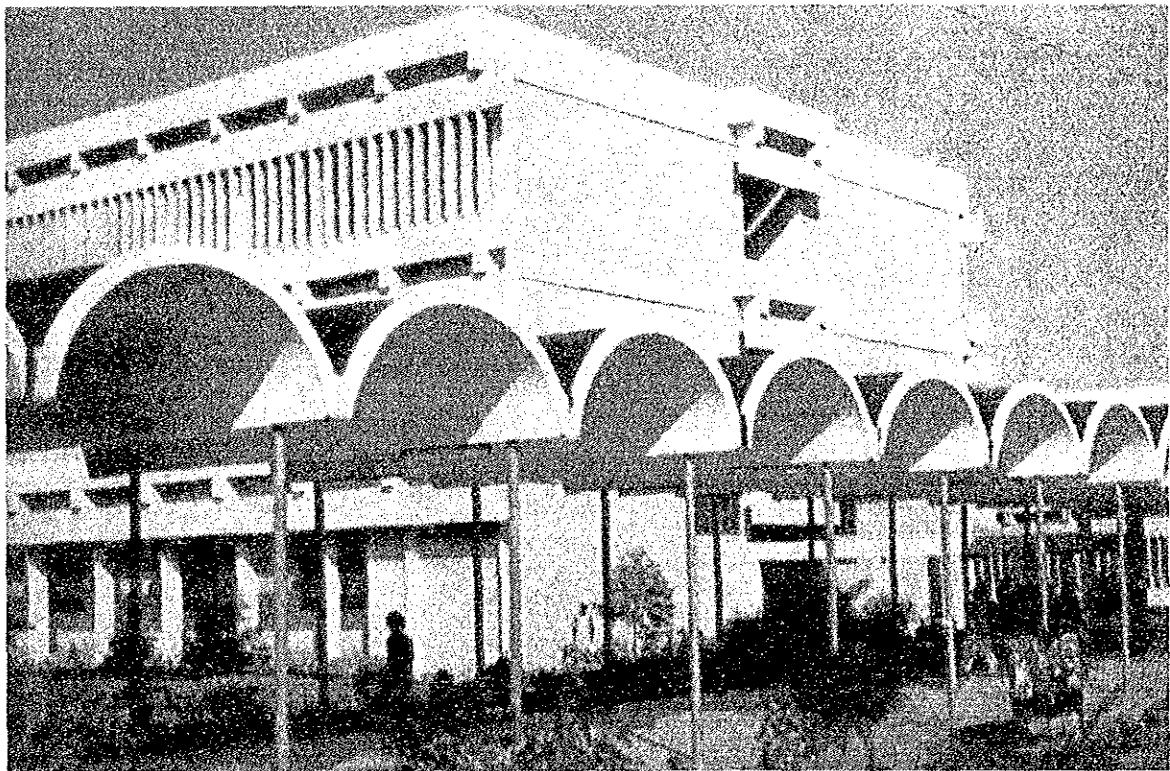
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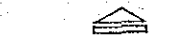
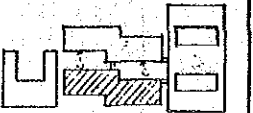
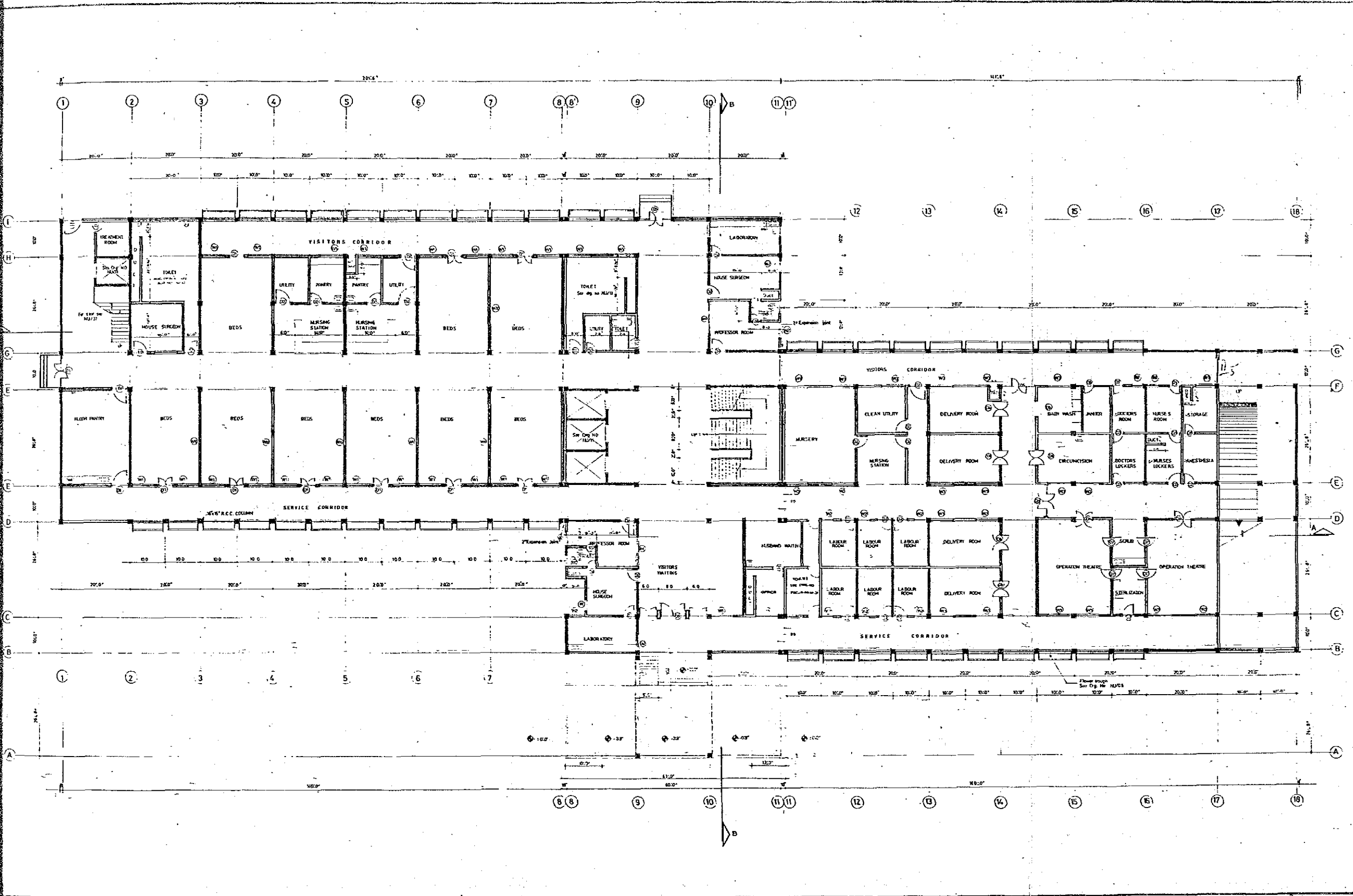
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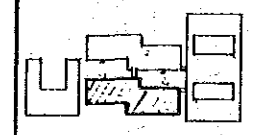
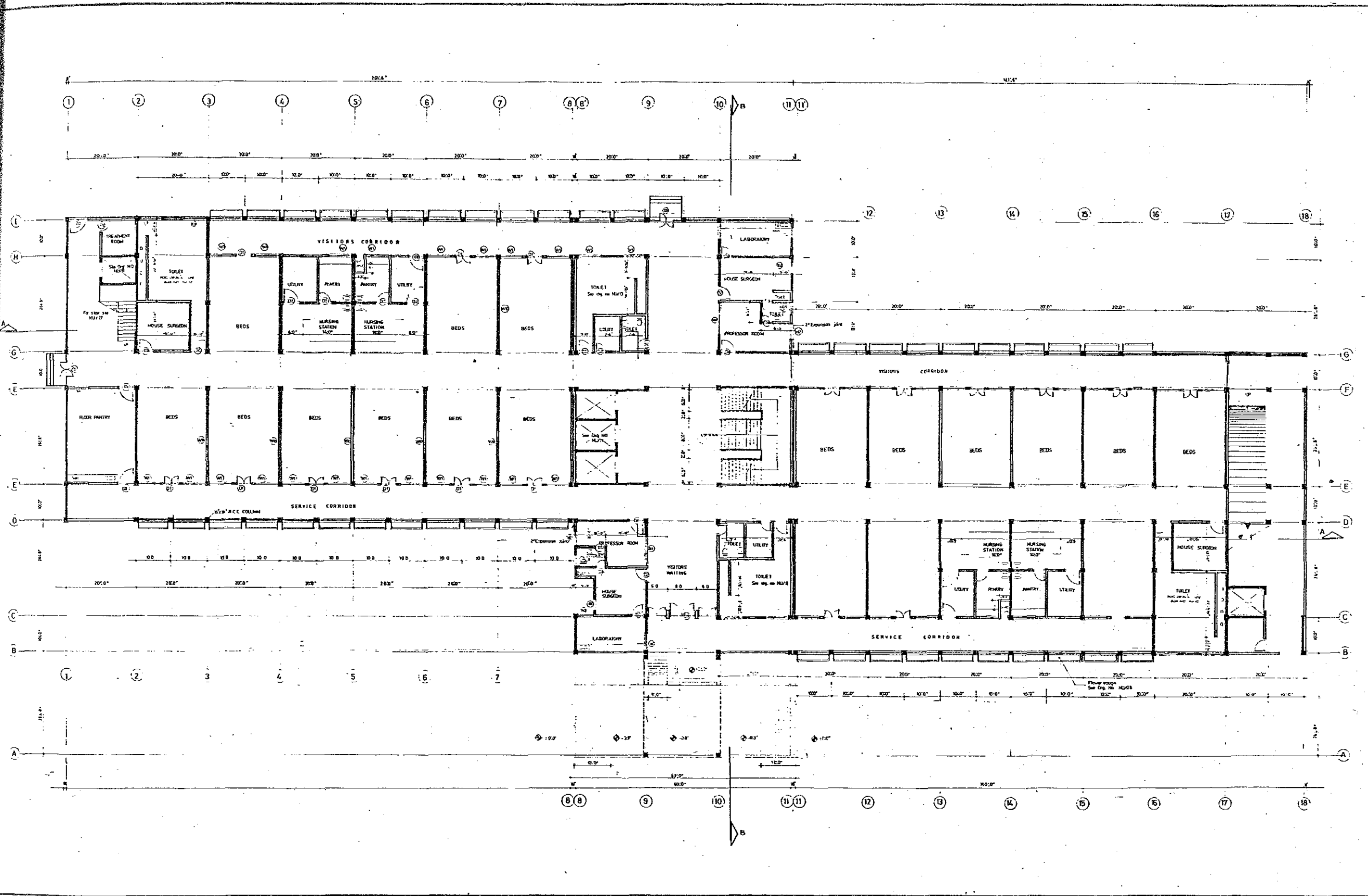
College



College



ARCHITECT	SHAFIQ UR
HEAD A.D.G.	DR. HANFEEZ HUSSEIN
cicidq	
ARCHITECTURAL DESIGN GROUP	
University Design Directorate UNIVERSITY OF ENGINEERING & TECHNOLOGY LAHORE	
FOR PUNJAB MEDICAL COLLEGE & HOSPITAL FAISALABAD	
HOSPITAL NURSING UNIT	
GROUND FLOOR PLAN	
SCALE	1:100
DRAWN	PMC/H/NJ/01-R
CHECKED	WORKING
DATE	DRAWING
REVISED	BY: T.L.P.



ARCHITECT MANAGER MR. *Orkhan*
 HEAD A.C.S. DR. HANNOO HUSSEIN

cicdq

ARCHITECTURAL
 DESIGN GROUP

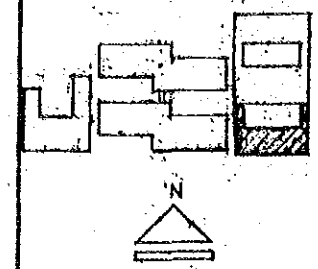
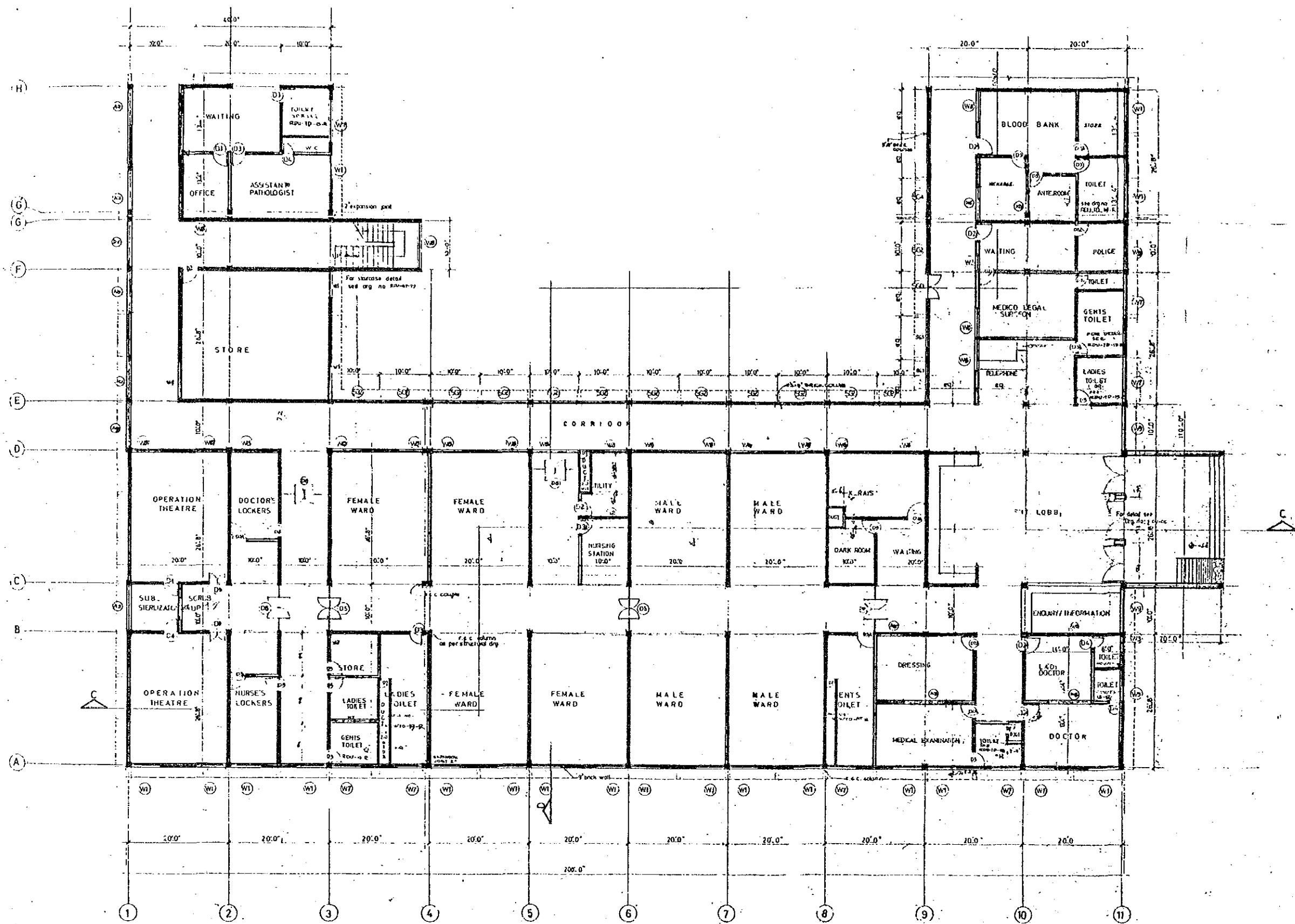
University Design Directorate
 UNIVERSITY OF ENGINEERING & TECHNOLOGY LAHORE

PROJECT
 PUNJAB MEDICAL COLLEGE & HOSPITAL FAISALABAD

HOSPITAL
 NURSING UNIT

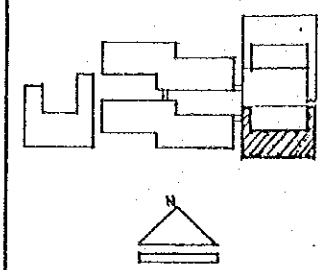
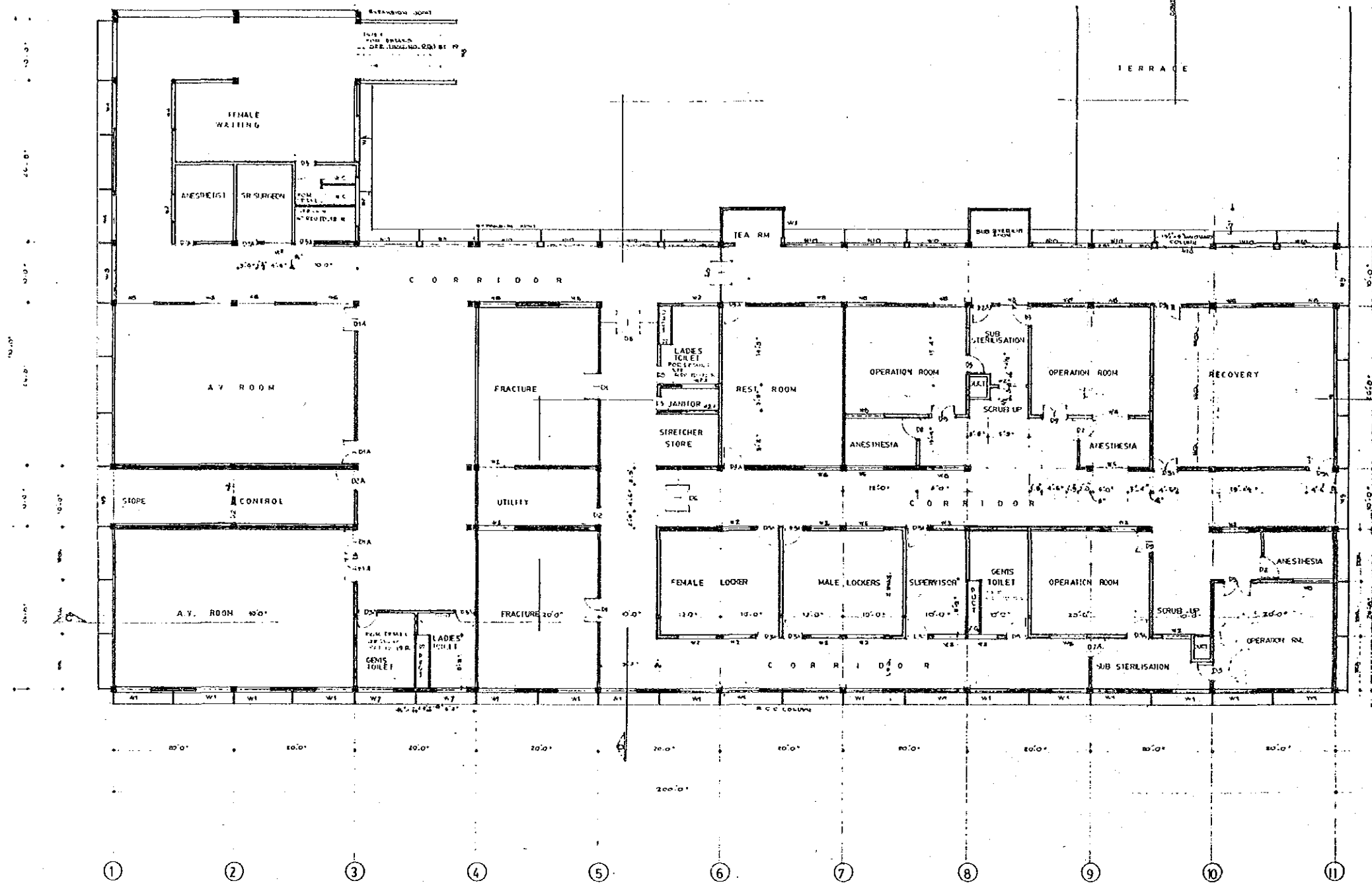
1-3 FLOOR PLAN

DATE	PAC/WM/01-R
DRAWN	
CHECKED	WORKING DRAWING
REVISION	

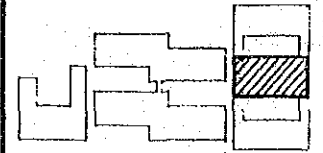


ARCHITECT	
HEAD A/S	MARSHED HUSSAIN
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University Design Directorate	
UNIVERSITY OF ENGG & TECH, LAHORE	
PROJECT	
PUNJAB MEDICAL COLLEGE & HOSPITAL, FAISALABAD	
HOSPITAL	
DIAGNOSTIC UNIT	
GROUND FLOOR PLAN	
SCALE 1/8" = 1'-0"	DU - P1
DRAWN: [Signature]	WORKING DRAWING
CHECKED: [Signature]	
DATE: 02.06.07	

G
F
E
D
C
B
A



ARCHITECT:	M. HAEEM MIR
HEAD:	A.D.G. DR. MAJMOOD HUSSAIN
oioioi	
ARCHITECTURAL DESIGN GROUP	
University Design Directorate UNIVERSITY OF ENGS. & TECH. LAHORE	
PROJECT:	PUNJAB MEDICAL COLLEGE & HOSPITAL FAISALABAD
DIAGNOSTIC UNIT	
FIRST FLOOR	
SCALE:	1" = 8'-0"
DRAWN BY:	RDU_P4/P1_R
CHECKED BY:	WORKING DRAWING
DATE:	05-03-1984



ARCHITECT

HEAD ARCHITECT
U. Ghuman
 DR. MANMOHAN SINGH



ARCHITECTURAL
 DESIGN GROUP

University Design Directorate
 UNIVERSITY OF ENGG & TECH, LAHORE

PROJECT
 PUNJAB MEDICAL COLLEGE
 & HOSPITAL, FAISALABAD

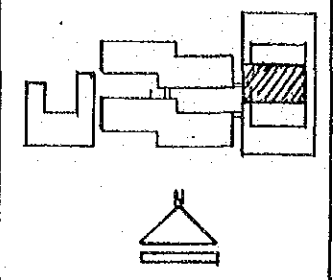
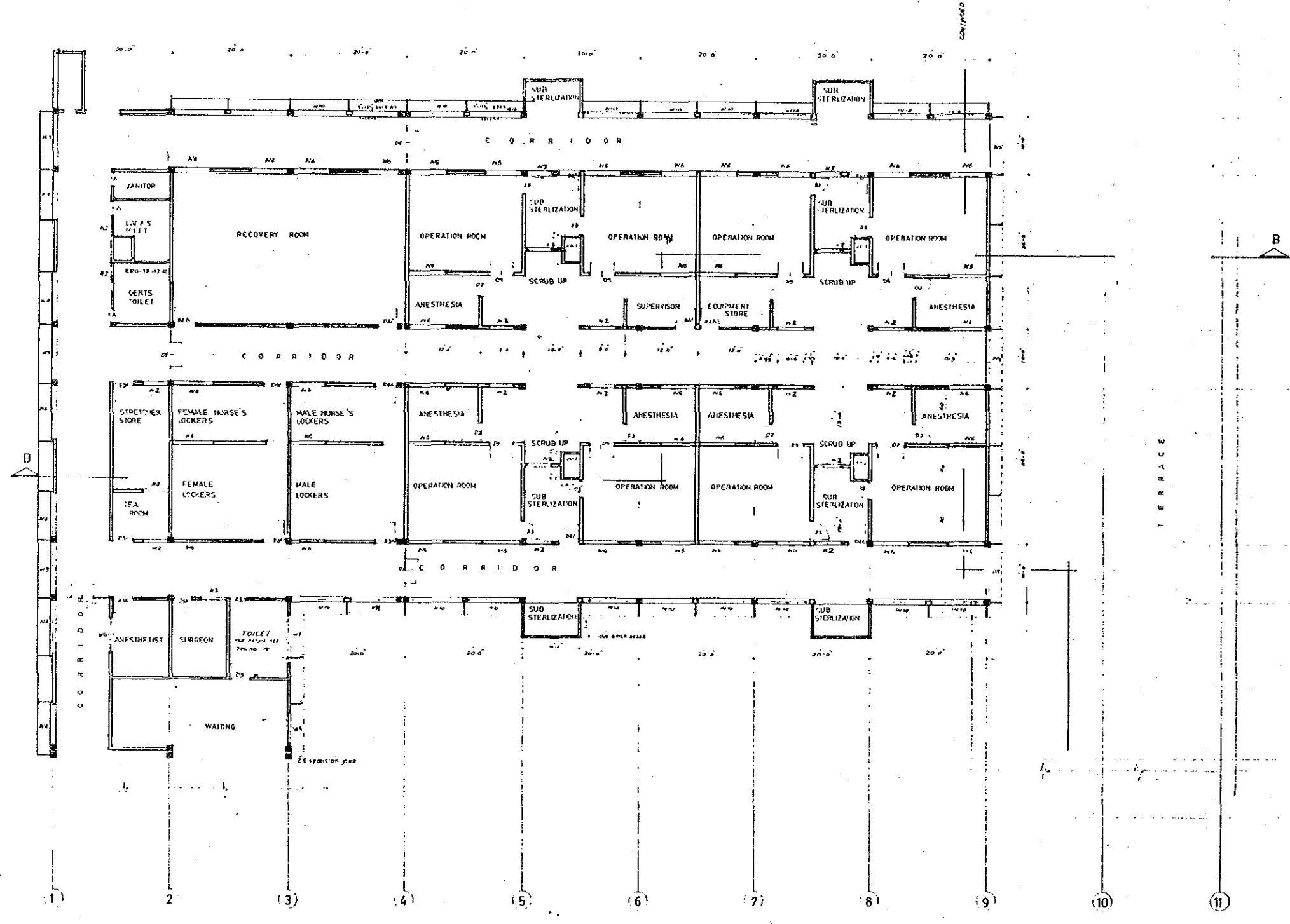
HOSPITAL
 DIAGNOSTIC UNIT

GROUND FLOOR PLAN

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 DRAWN
 CHECKED
 DATE 22/5/92

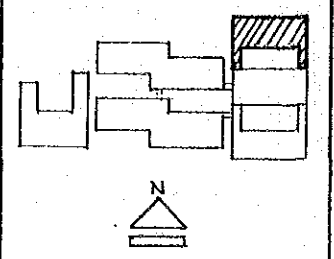
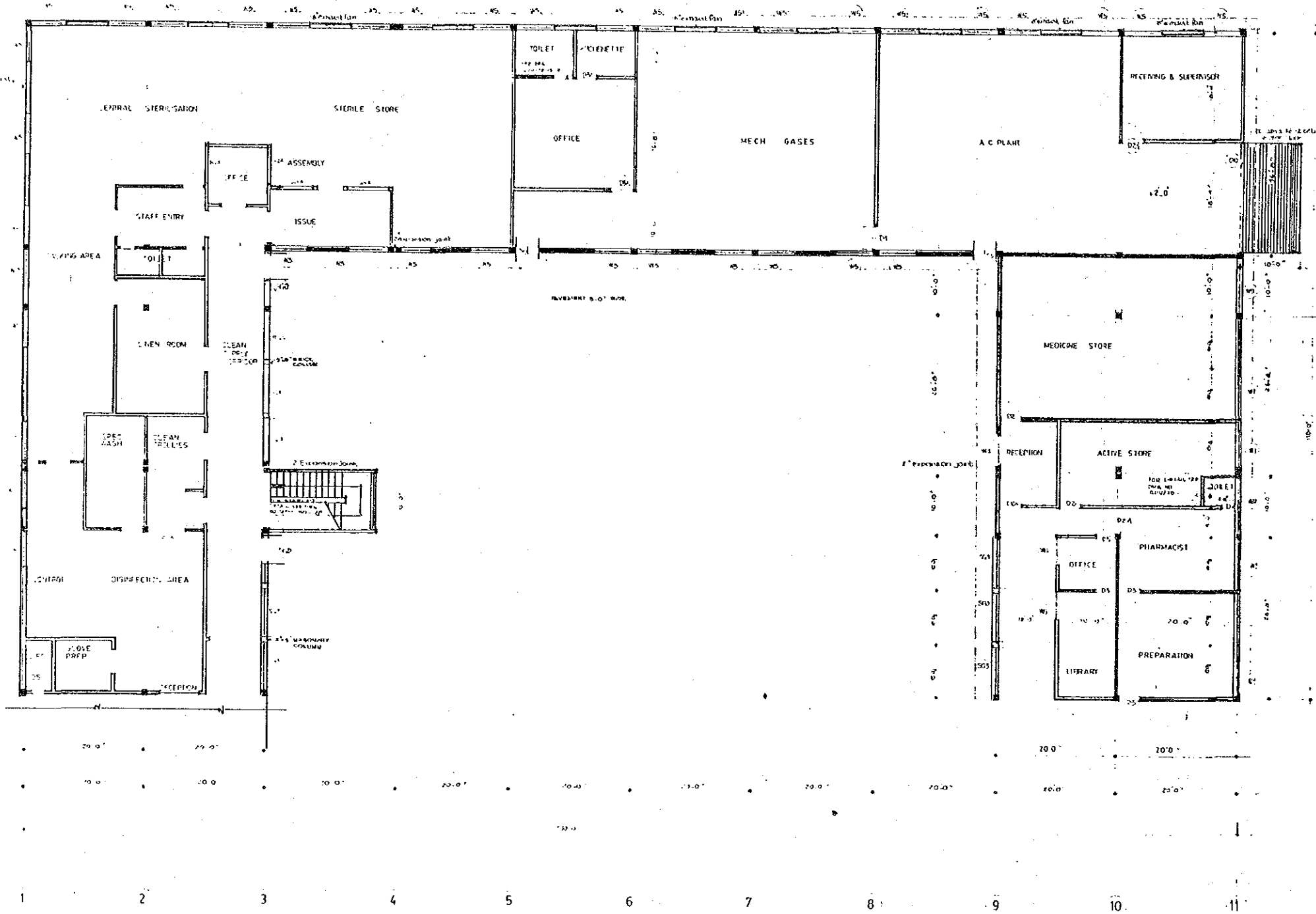
DU-P-2
 WORKING
 DRAWING

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NO.	SIZE	DESCRIPTION
D1	4'-6" x 7'-0"	DOUBLE LEAF PANELLED
D2	3'-6" x 7'-0"	SINGLE LEAF
D2S	3'-6" x 7'-0"	SPECIAL DOOR FOR X-RAY
D3	3'-0" x 7'-0"	SINGLE LEAF
D4	2'-6" x 7'-0"	SINGLE LEAF
D5	6'-0" x 6'-0"	DOUBLE LEAF SEE THROUGH
D6	6'-0" x 6'-0"	SINGLE LEAF PANELLED
D7	2'-6" x 5'-0"	SINGLE LEAF SEE THROUGH
D8	3'-0" x 7'-0"	SINGLE LEAF SEE THROUGH
D9	4'-6" x 7'-0"	DOUBLE
D1A	4'-6" x 6'-0"	D1 WITH PANEL
D1A	5'-6" x 6'-0"	D1
D1A	3'-0" x 6'-0"	D1
D1A	2'-6" x 6'-0"	D1

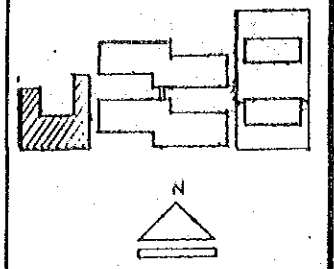
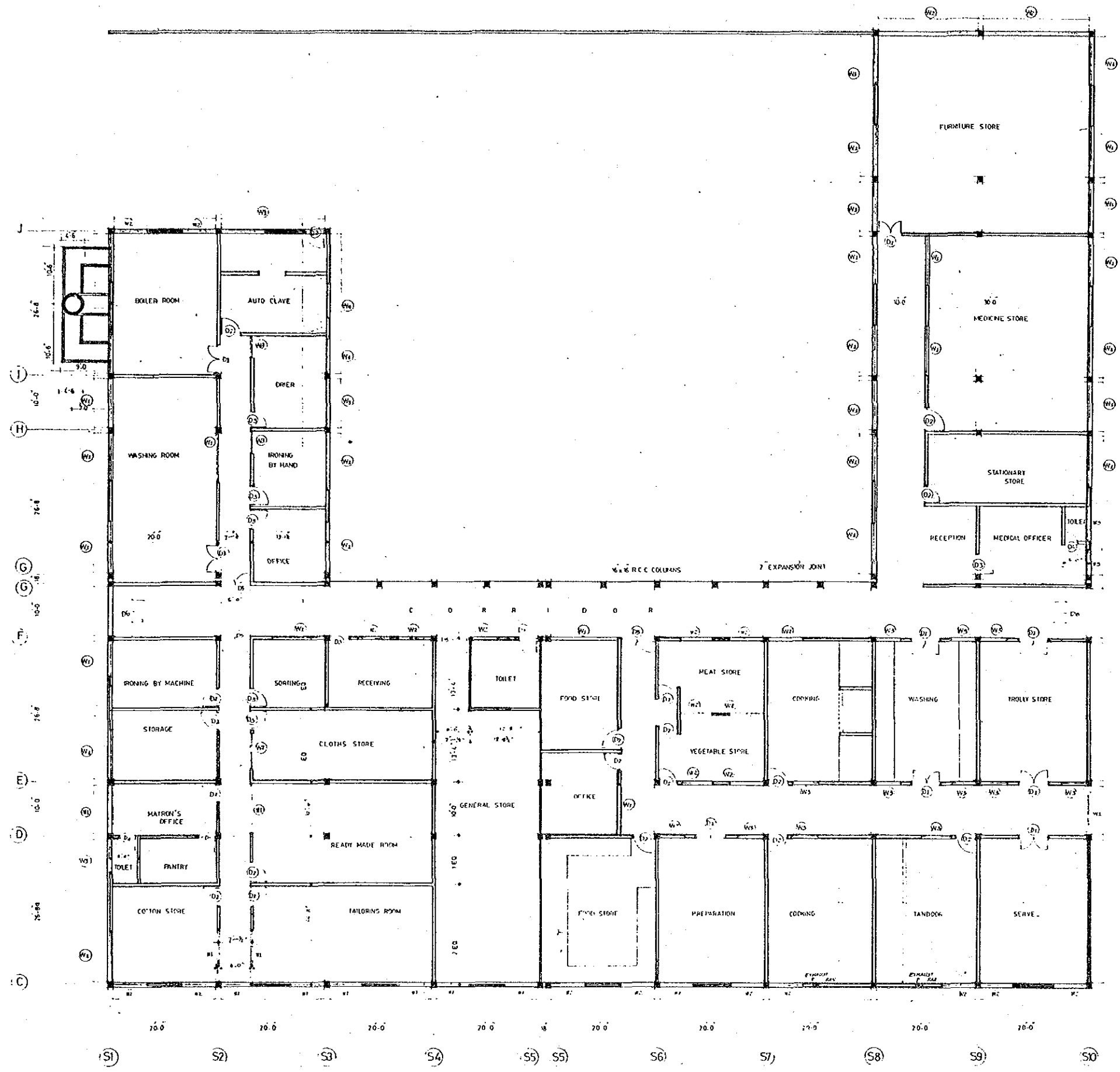
ARCHITECT	M. HAEEMHUR
HEAD A.D.S.	DR. MAHMOOD HUSSAIN
oicicp	
ARCHITECTURAL DESIGN GROUP	
University Design Directorate UNIVERSITY OF ENGG. & TECH. LAHORE	
PROJECT PUNJAB MEDICAL COLLEGE & HOSPITAL FAISALABAD	
HOSPITAL DIAGNOSTIC UNIT	
FIRST FLOOR PLAN	
SCALE	1/8" = 1'-0"
DRAWN	RDU-P5/P2-R
CHECKED	WORKING DRAWING
DATE	



SCHEDULE OF WINDOWS

NO.	DESCRIPTION	AREA
1	ST. 10' x 10' OPENABLE WINDOW	100.00
2	ST. 10' x 10' OPENABLE WINDOW	100.00
3	ST. 10' x 10' OPENABLE WINDOW	100.00
4	ST. 10' x 10' OPENABLE WINDOW	100.00
5	ST. 10' x 10' OPENABLE WINDOW	100.00
6	ST. 10' x 10' OPENABLE WINDOW	100.00
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100	ST. 10' x 10' OPENABLE WINDOW	100.00

ARCHITECT	
HEAD ADD. DR. MANSOOR HUSSAIN	
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ARCHITECTURAL DESIGN GROUP	
University Design Directorate UNIVERSITY OF ENGG. & TECH. LAHORE	
PROJECT	PUNJAB MEDICAL COLLEGE & HOSPITAL FAISALABAD
HOSPITAL	DIAGNOSTIC UNIT
GROUND FLOOR	
SCALE 1/8" = 1'-0"	RDU_P_03_LR
DRAWN <i>Asif</i>	WORKING DRAWING
CHECKED	
DATE 15.11.1983	



ARCHITECT	
HEAD A.D.G.	<i>Dr. Mahmood Hussain</i> DR MAHMOOD HUSSAIN
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PUNJAB MEDICAL COLLEGE & HOSPITAL FAISALABAD	
SERVICES UNIT	
GROUND FLOOR PLAN	
SCALE	RS_WP_01
DRAWN	WORKING
CHECKED	DRAWING
DATE	

