4-5 Basic Design Drawings

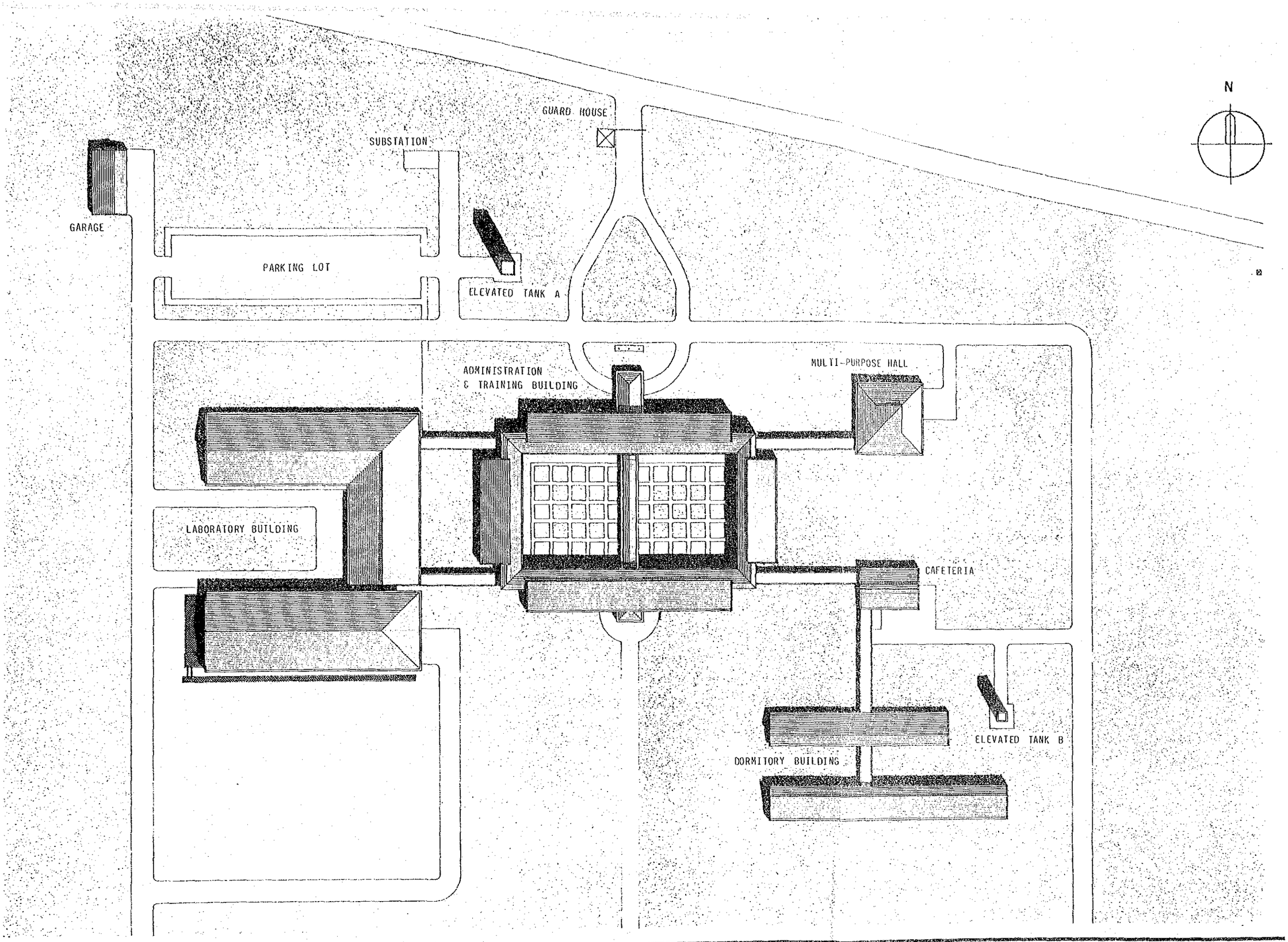
(1) List of Drawings

01	Site plan	
02	Administration & Training Building	Ground Floor plan
03	"	First Floor plan
04	"	Elevation & Section
05	Laboratory Building	Ground Floor plan
06	"	First Floor plan
07	"	Elevation & Section
08	Dormitory Building	Ground & First Floor plan
09	"	Elevation & Section
10	Multi Purpose Hall and Other	Plan, Elevation & Section

(2) Floor Area (square meters)

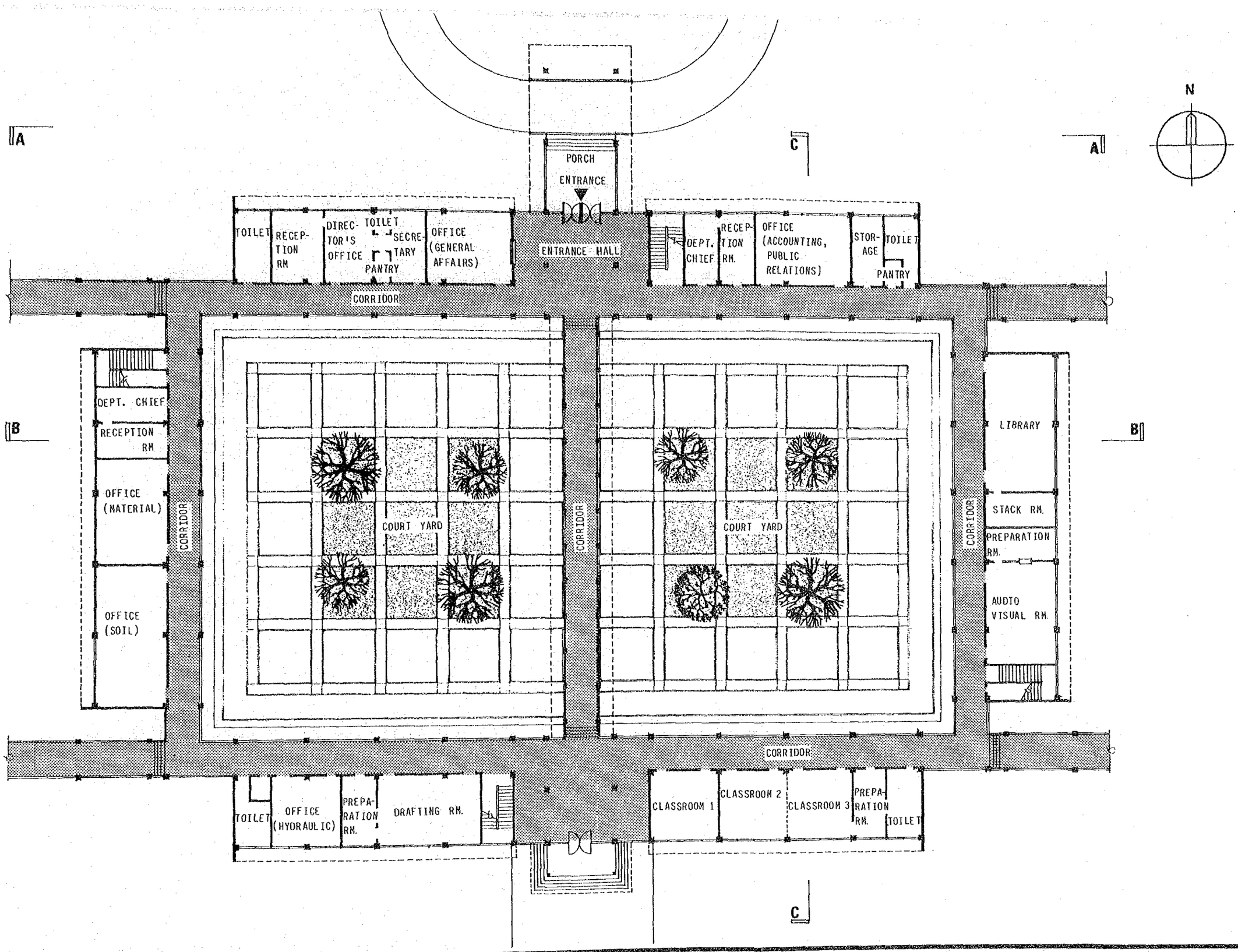
	Administration & Training Building	Laboratory Building	Dormitory Building	Other
Ground Floor	2,060 m^2	2,595 m^2	963 m^2	855 m^2
First Floor	1,540 m^2	90 m^2	432 m^2	
Total	(3,600 m^2)	(2,685 m^2)	(1,395 m^2)	(855 m^2)

Grand Total Floor Area 8,535 m^2



THE ESTABLISHMENT PROJECT OF ITC IN BURMA

SITE PLAN 1 : 1000 **01**

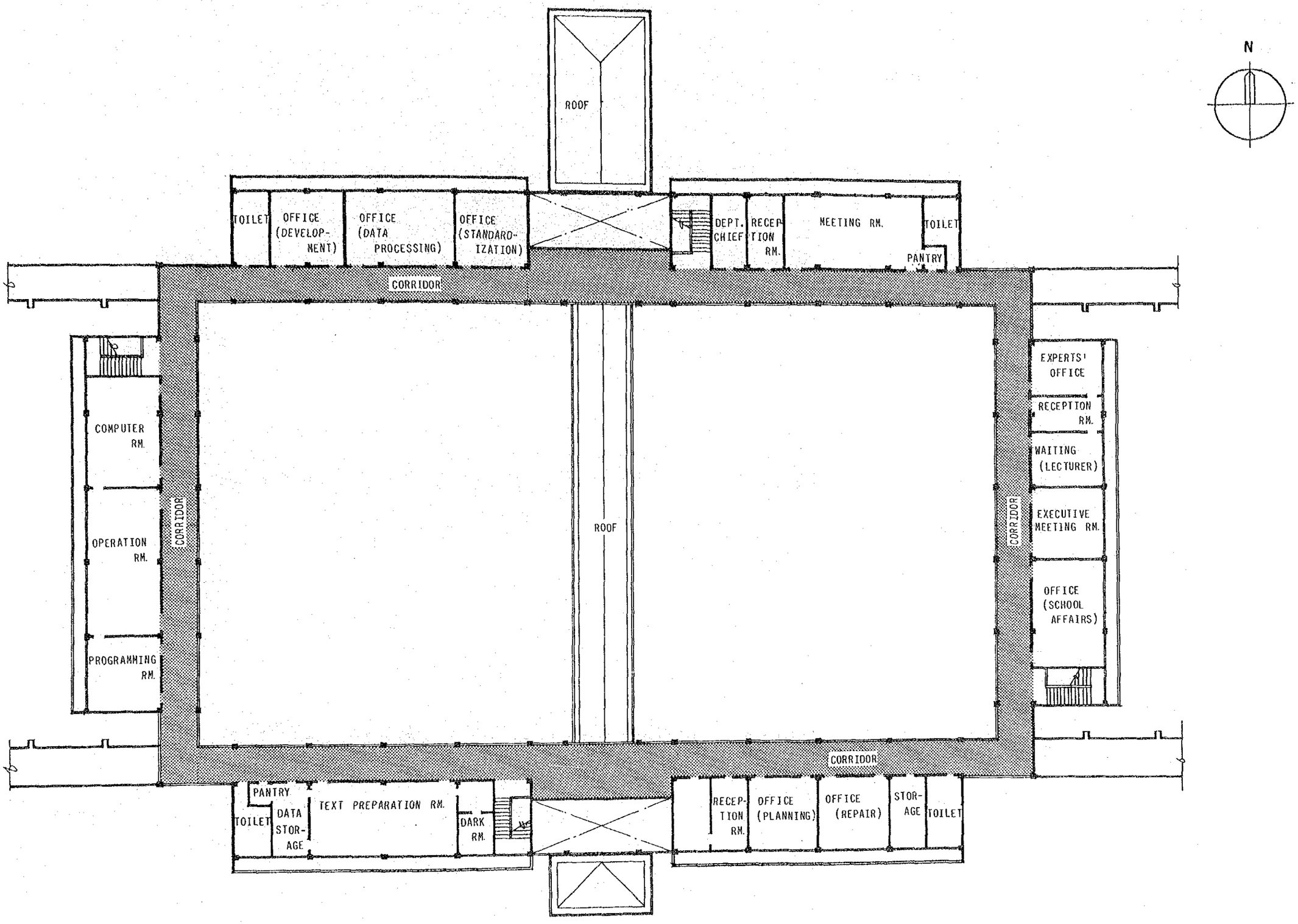


THE ESTABLISHMENT PROJECT OF ITC IN BURMA

ADMINISTRATION & TRAINING BLDG.

GROUND FLOOR PLAN 1:300

02

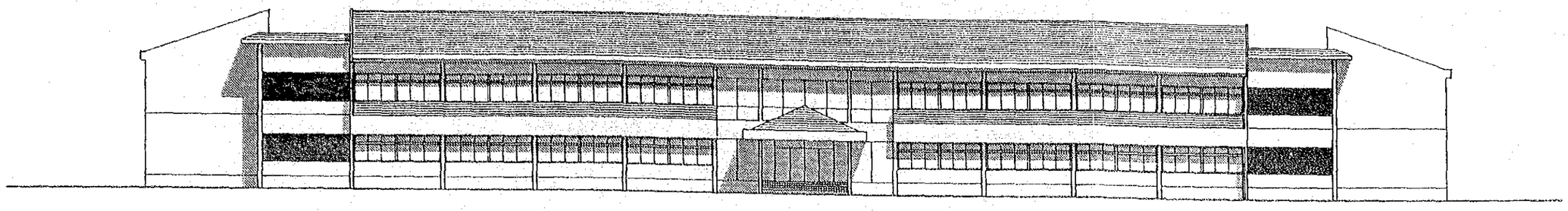


THE ESTABLISHMENT PROJECT
OF ITC IN BURMA

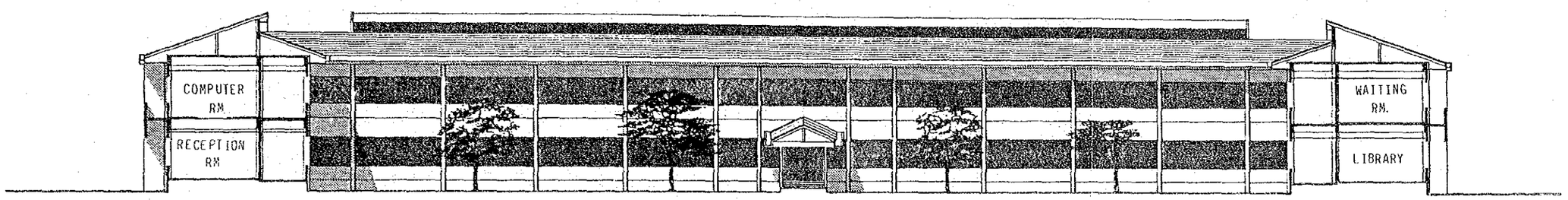
ADMINISTRATION & TRAINING BLDG.

FIRST FLOOR PLAN 1:300

03



ELEVATION A - A



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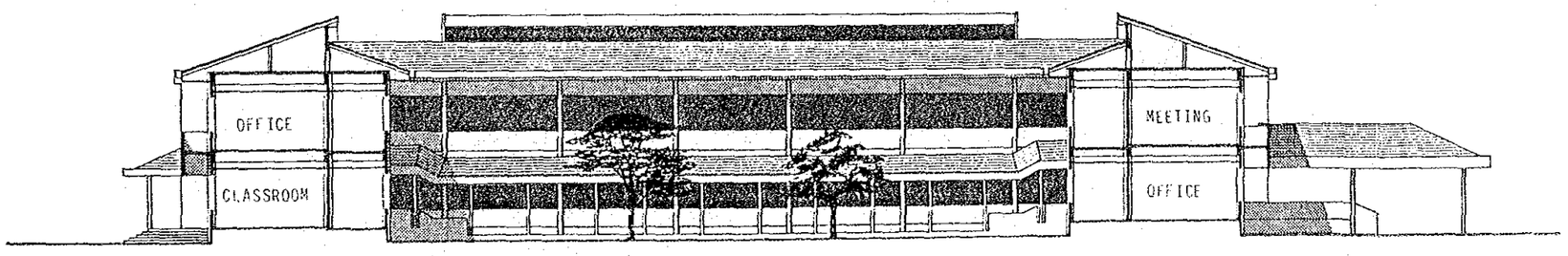


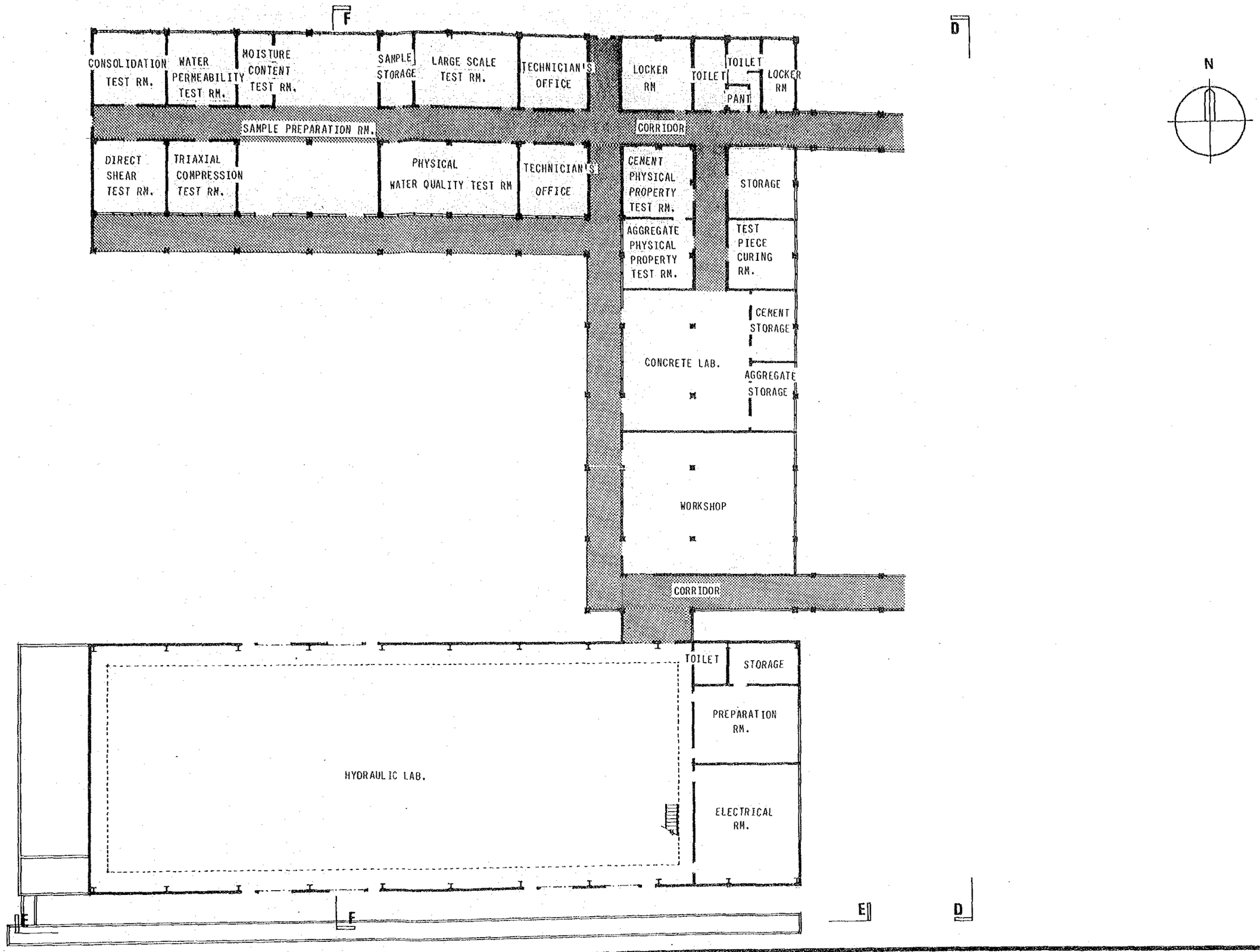
SECTION C - C

THE ESTABLISHMENT PROJECT
OF ITC IN BURMA

ADMINISTRATION & TRAINING BLDG.

ELEVATION SECTION 1 : 300

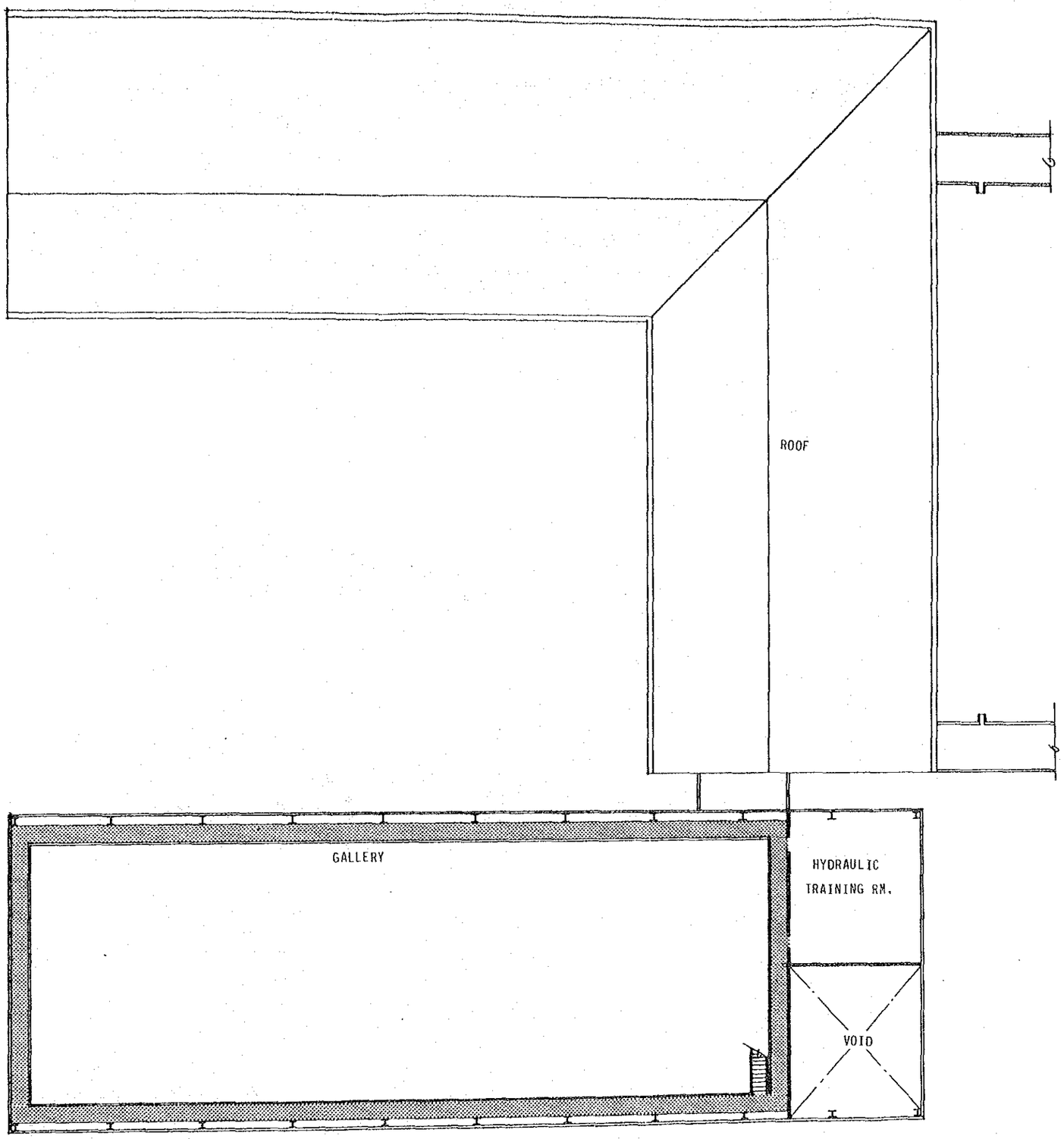
04



THE ESTABLISHMENT PROJECT OF ITC IN BURMA

LABORATORY BLDG.
GROUND FLOOR PLAN 1:300

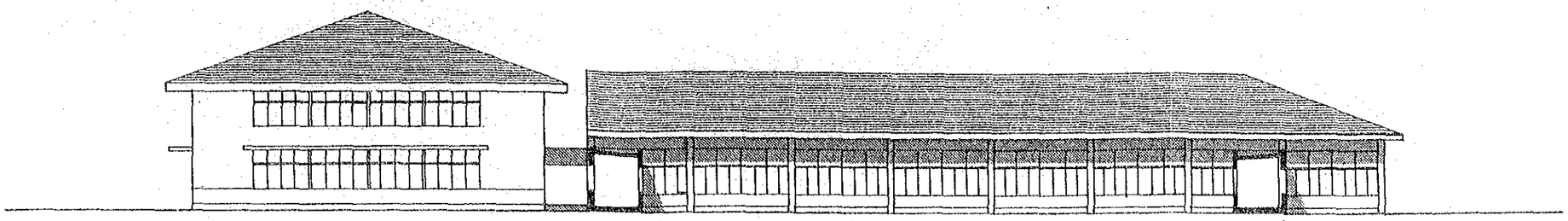
05



THE ESTABLISHMENT PROJECT
OF ITC IN BURMA

LABORATORY BLDG.
FIRST FLOOR PLAN 1:300

06



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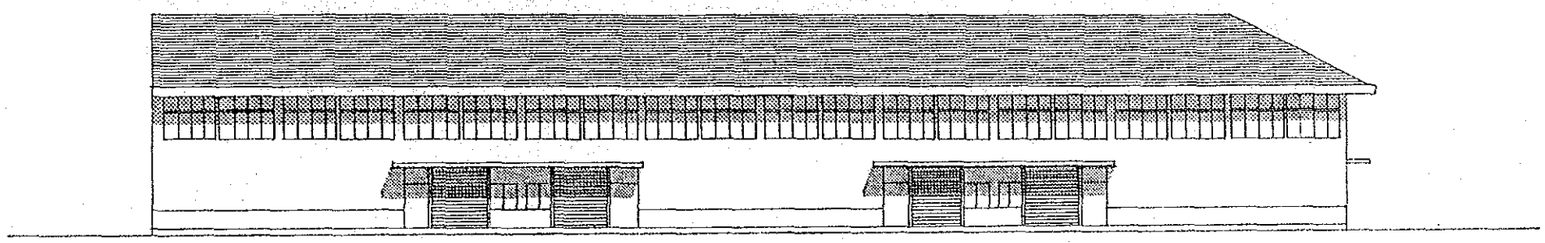
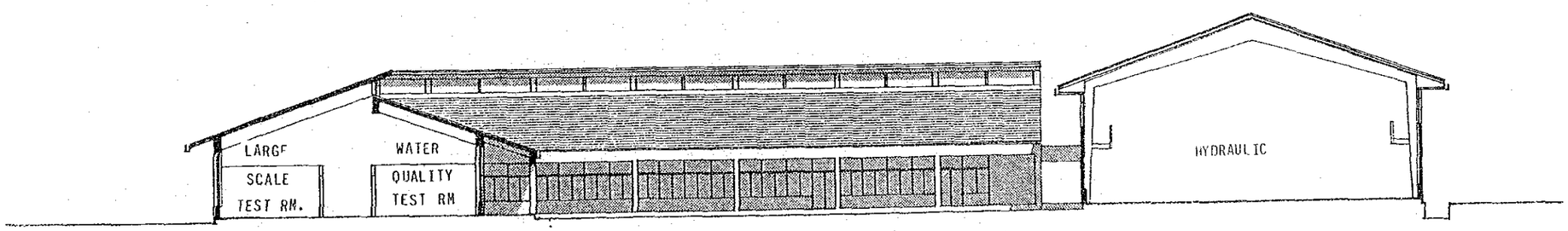


ELEVATION E-E

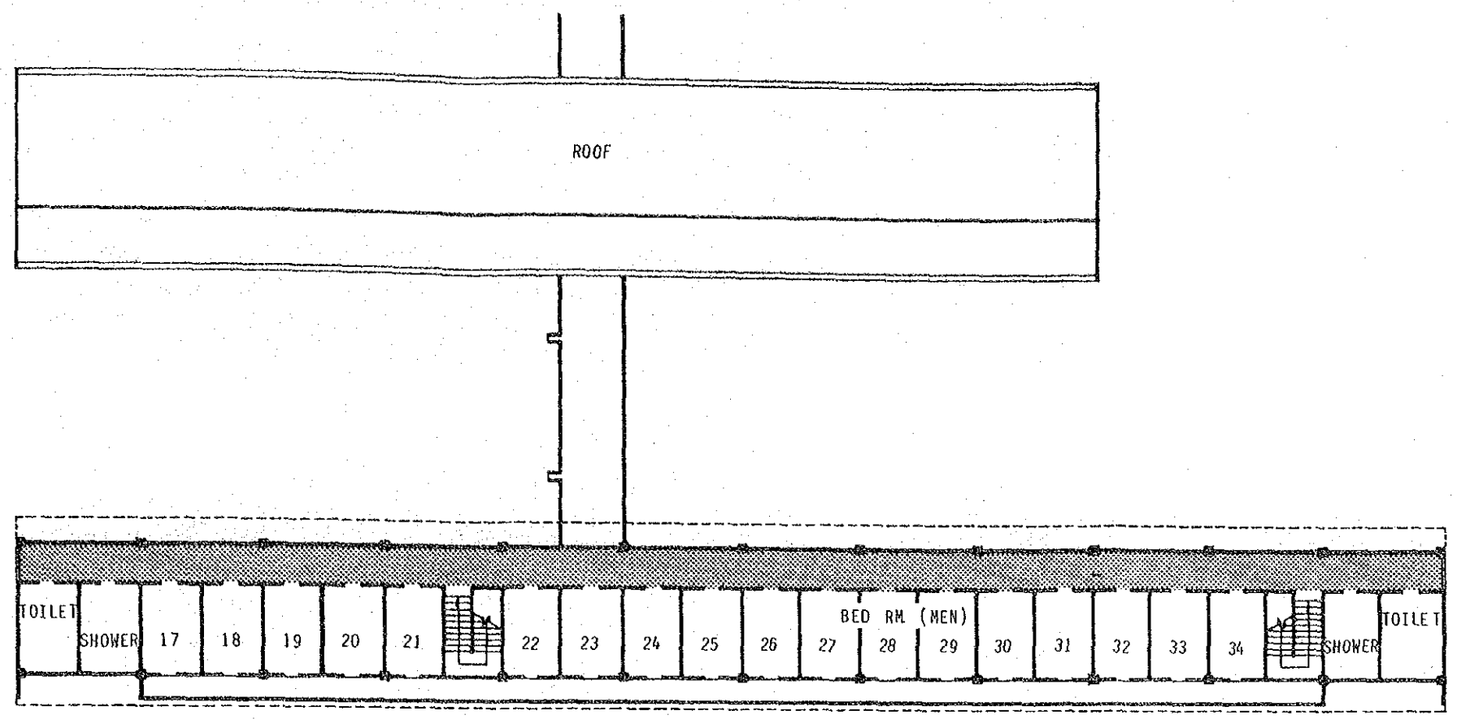


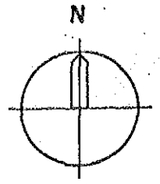
SECTION F-F

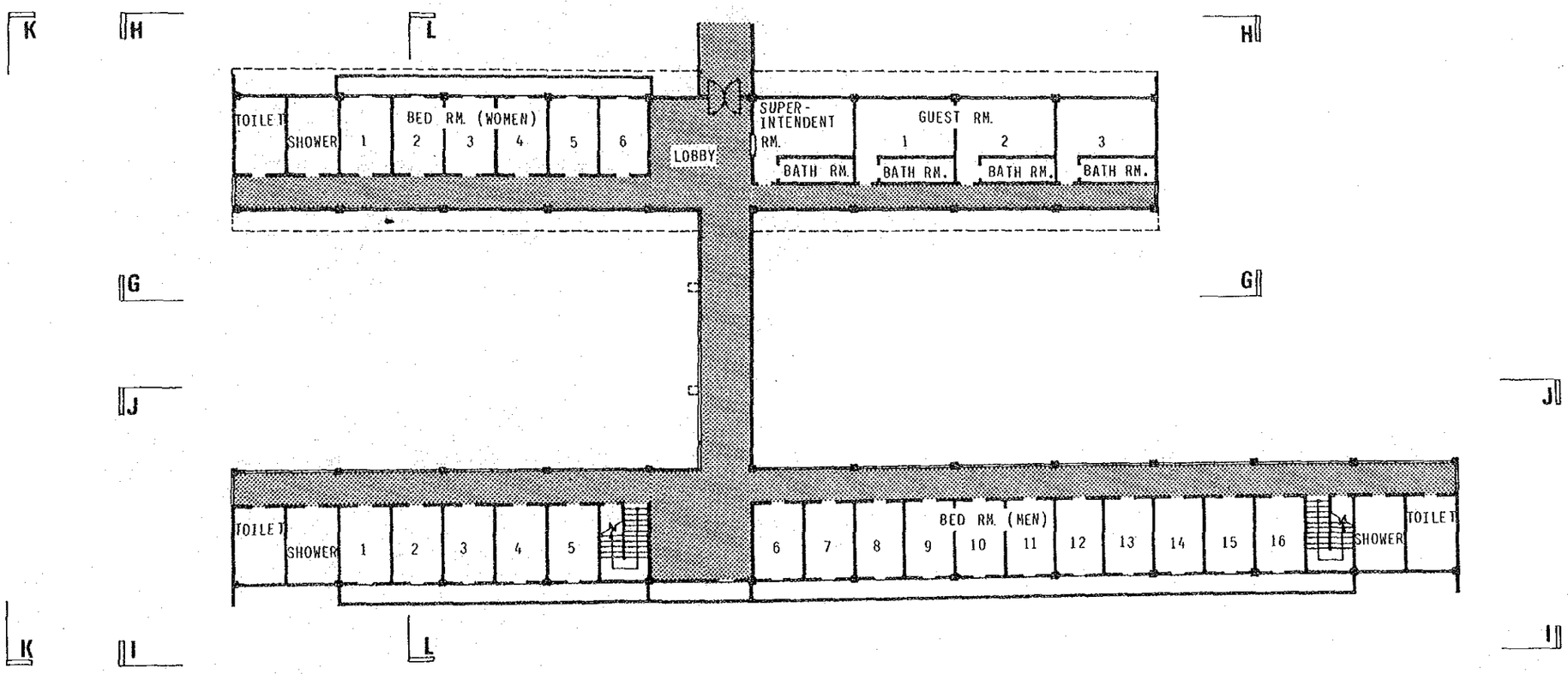
THE ESTABLISHMENT PROJECT OF ITC IN BURMA

LABORATORY BLDG.
ELEVATION SECTION 1:300

07





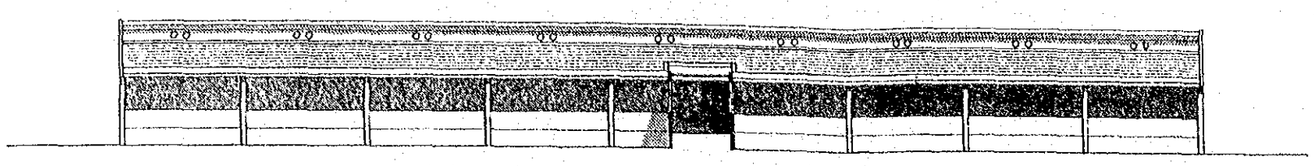


THE ESTABLISHMENT PROJECT OF ITC IN BURMA

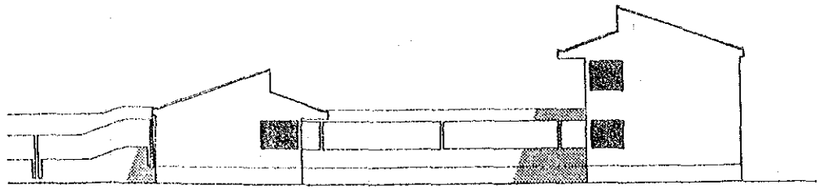
DORMITORY

GROUND FIRST FLOOR PLAN 1:300

08



ELEVATION G-G



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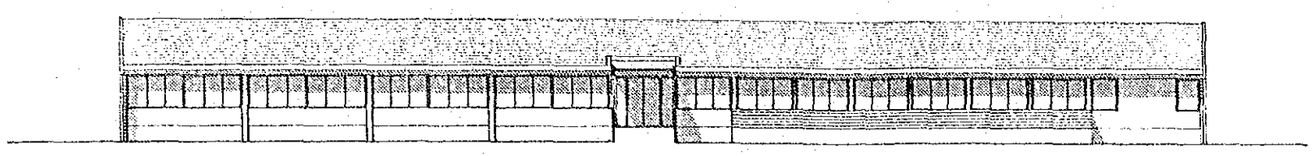

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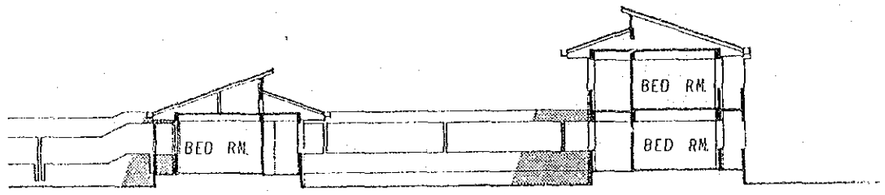
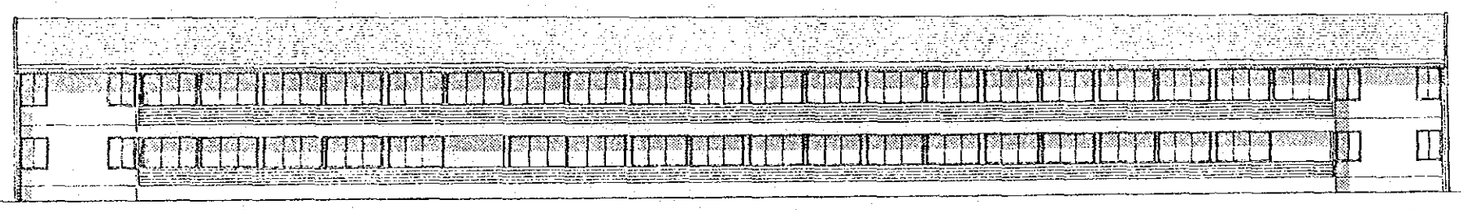
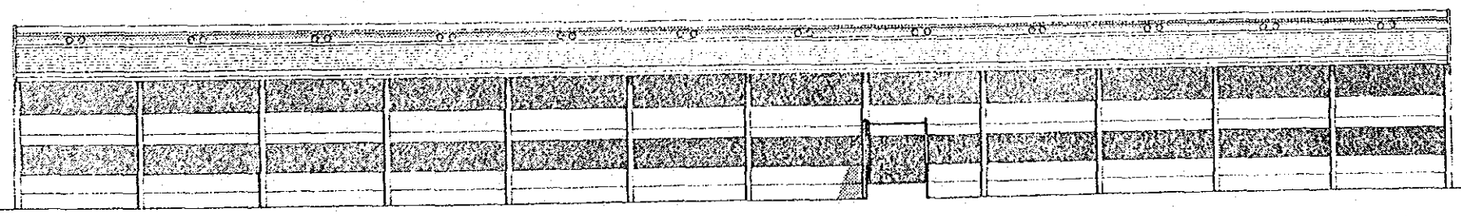


SECTION L-L



ELEVATION I-I



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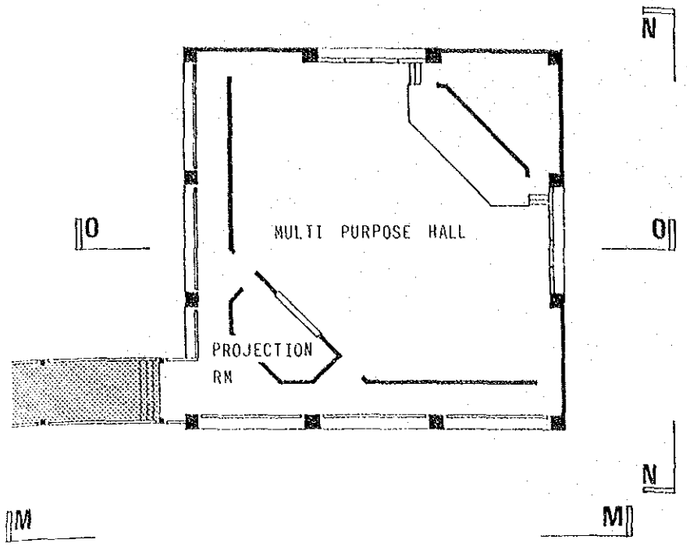
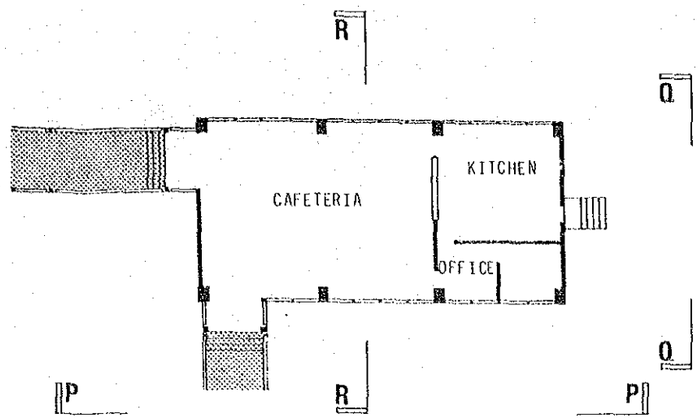
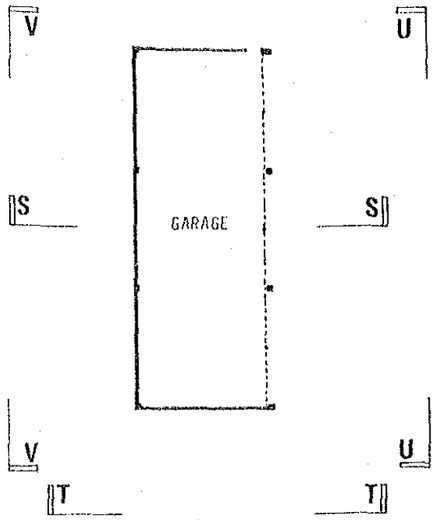
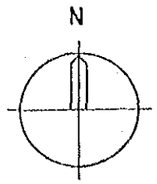
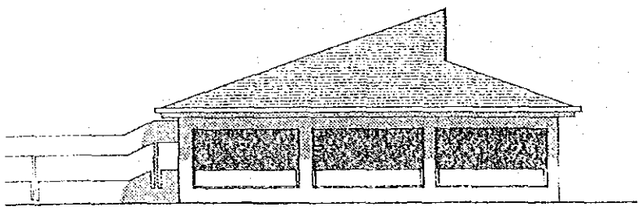


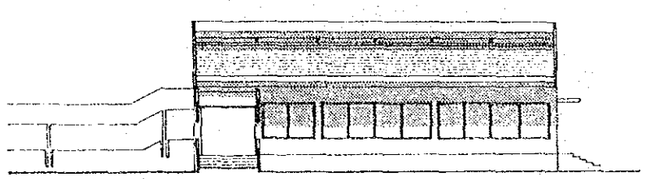




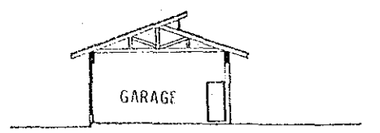




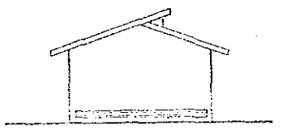
ELEVATION M-M



ELEVATION P-P



SECTION S-S



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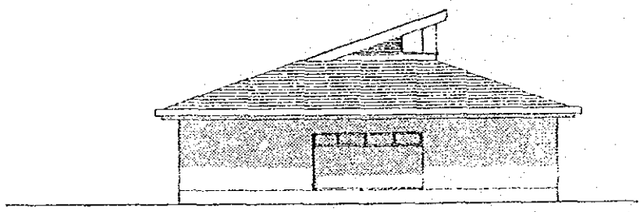
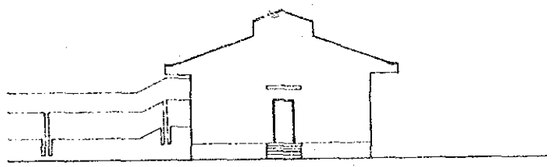
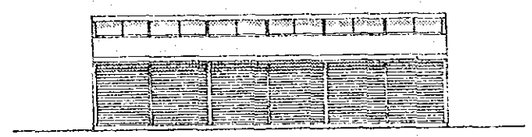


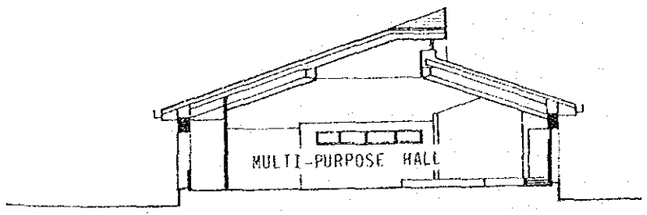
ELEVATION N-N



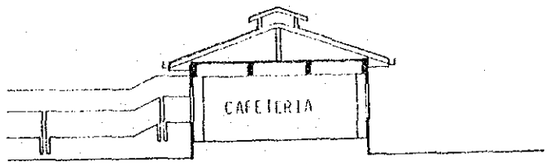
ELEVATION Q-Q



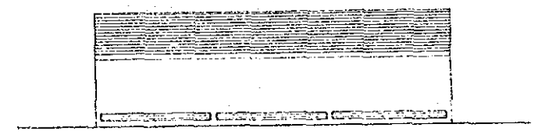
ELEVATION U-U



SECTION O-O



SECTION R-R



ELEVATION V-V

THE ESTABLISHMENT PROJECT
OF ITC IN BURMA

MULTI PURPOSE HALL · CAFETERIA · GARAGE
GROUND FLOOR PLAN ELEVATION SECTION 1 : 300

10

4-6 Construction Work

4-6-1 Basic Policy of Construction Work

The ITC project will be implemented in accordance with the grant aid system of the Government of Japan. The Project will proceed to the official implementation stage after it is approved by the governments of both countries and Exchange of Notes is concluded.

The Government of Burma will subsequently select a Japanese consultant firm who will set to work on the implementation of the detail designs for buildings and equipment. After the detail design documents have been completed, construction and procurement of equipment will be performed by Japanese contractor appointed by tender.

The construction work by the Japanese side is estimated to require a period of approximately 15 months considering the function and size of the facilities, local construction conditions and local climatic conditions.

In the Pegu region, the 6 months from the middle of May to October is the rainy season, with an average monthly rainfall of 550 mm.
It will be necessary to formulate a systematic construction progress plan to finish earth work and foundation work before the rainy season, and to proceed to roofing work once the rainy season is over, in order to eliminate delays in the work schedule during the rainy season.
Ample consideration will also need to be given to water drainage and curing.

The preparation works by the Burmese side include the preparation of the proposed construction site (including space for temporary offices, workshops, sheds in which to store building materials, etc.), construction of access roads to the site, drilling wells to supply necessary water, temporary supply of power and telephone service and obtaining of building permission. Such works should be completed before the commencement of the Japanese works.

Moreover, as outlined in the foregoing paragraph, because it is

difficult to carry out any earth work or foundation construction work during the rainy season, it is desirable to conclude the Exchange of Notes and the contract for the Burmese side construction work during the rainy season so that preparatory construction work may be commenced as soon as the rainy season is over.
During the Detail Design stage, including the Burmese side work, it will be necessary for the ID and the Japanese counterparts to work together to clearly delineate the commencement date for each item of construction to be carried out by both sides, and to consult frequently to ensure that each stage of the construction work proceeds smoothly.

One of the basic policies of the construction for the Project is to procure building materials and equipment locally as much as possible, but foreign countries must inevitably be relied upon in order to obtain a sufficient quantity of building materials and equipment. It will also be necessary to establish a system to ensure that all construction work undertaken by the Burmese side, along with customs clearance procedures are carried out according to schedule without delays.

4-6-2 Scope of Work

The Project is implemented in accordance with the system stipulated in the grant aid program of the Government of Japan. The scope of work is specified according to the demarcation rule of the system.

(1) Works Undertaken by the Japanese Side

1) Infrastructure construction

(a) Electric Power

The installation of power supply system for the buildings of the Project including outdoor type substation (33kV/11kV) and indoor type substation (11kV/400V-230V).

(b) Water supply

The installation of a water supply system including well pumps from the wells.

(c) Water drainage

The construction of a drainage system for soil, waste and rain water and septic tank in the site.

(d) Telephones

The installation of a telephone system for the buildings of the Project.

2) Buildings

The building construction work for all of the buildings shown in the Basic Design Study Report.

3) Exterior work

The exterior work on the courtyard shown on the Basic Design Study Report. (not including the planting work)

4) Equipment

The installation of all of the equipment to be used for training and testing purposes shown on the Basic Design Study Report equipment list.

5) Transportation of materials and equipment

Packing, insurance, loading, shipping, ocean freight, unloading and inland transportation of building materials and equipment imported to the Burmese.

(2) Works undertaken by the Burmese side.

1) Infrastructure construction

(a) Preparation of the proposed site

This will involve clearing and leveling the construction site, and preparing it for the construction work.

(b) Electric Power supply

The installation of one 33kV line to the site for the buildings of the Project.

(c) Telephone

The installation of telephone lines (COL) to the MDF installed in

the administration and training building.

(d) Water supply

The drilling of two wells on the site to supply water to the buildings of the Project.

(e) Other

1. The construction of access roads to be used during the construction period.

2. The provision of area necessary for facilities such as field office, worksheds and sheds for storing materials at the site.

3. The supply of water, power and telephone for use during the construction period.

2) Exterior work

The construction of access roads, planting work, internal roads, gates, peripheral fence and guardhouse.

3) Equipment

The provision and installation of furniture and fittings, blinds and curtains.

4) The transportation of construction materials and equipment

Assurance of prompt unloading, tax exemption and customs clearance for imported materials and equipment for the project. Payment of customs, duties, internal taxes and other fiscal levies for customs clearance, unloading, inland transportation, etc. of imported materials and equipment for the project.

5) Permits, licenses and application procedures

To obtain all of the necessary licenses and permits, make all of the necessary applications, and complete all of the necessary bank arrangements required for the implementation of the Project, and to bear any costs incurred.

6) Tax exemption:

To exempt Japanese nationals engaged on the Project from custom duties, internal taxes and other fiscal levies which may be imposed in Burma with respect to the supply of building materials, equipment and services for the Project.

7) Provision of convenience:

To accord convenience without delay to Japanese national whose services may be required in connection with the supply of the building materials, equipment and services under the verified contracts such facilities as may be necessary for their entry into Burma and their stay therein for the performance of their work.

8) Others:

To bear all the expenses, other than those to be borne by the grant aid, necessary for the Project.

Of the works to be undertaken by the Burmese side outlined above, particularly items 1)-(a), 1)-(e) and the building permit and bank arrangement should be completed before the commencement of the construction work to be undertaken by the Japanese side. However, all of the works by the Burmese side are to be completed by the time the Japanese side construction work has been finished. Specifically, items 1)-(b), -(c), -(d) must be completely furnished at least two months before the final Building and Equipment inspection.

9) Rough cost estimate of the Burmese Works

The Japanese side has compiled the following rough estimates of the costs of the preliminary and permanent works to be undertaken by the Burmese side. It will be necessary for the Burmese side to choose an appropriate time to formulate a budgetary plan and undertake the design and construction work in order to ensure the Project to be executed smoothly and the ITC facilities utilized effectively after inauguration.

(a) Preliminary works

1. Leveling	270,000 Ks
Item 1)-(a)	

2. Access road Item 1)-(e)-1	1,932,000 Ks
3. Electric power supply Item (1)-e)-3	200,000 Ks
4. Water supply Item (1)-e)-3	35,000 Ks
5. Telephone item (1)-e)-3	84,000 Ks
Total	2,521,000 Ks

(b) Permanent works

1. Electric power supply Item (1)-b), installation of aerial power line (33kV) to the site	509,000 Ks
2. Water supply Item 1)-(d), Water supply of preliminary works is to be used successively	
3. Telephone service Item 1)-(c) installation of cables to the Administration & Training Building	117,000 Ks
4. Exterior work Item 2), planting work is excluded	5,312,000 Ks
5. Equipment Item 4)	606,000 Ks
Total	6,544,000 Ks
Grand Total	9,065,000 Ks

4-6-3 Construction Supervision Schedule

According to the grant aid system of the government of Japan, the Consultant shall enter into a detail design and supervision contract with the Government of Burma to supervise the work of the Project. The purpose of supervision is to check whether the work is in progress as indicated in the design documents and drawings and to advise to improve in quality, during the period of the work, to ensure the proper performance of the construction and equipment procurement contract, from the fair viewpoint. The service of the Consultant will be as follows.

(1) Cooperation for tender and contracts

The Consultant will prepare tender documents necessary for selection of Japanese incorporations engaged in construction work and procurement of equipment, perform the tender, and give advice on conclusion of the contracts.

(2) Coordination for the Contractor

The Consultant will review the project schedule, construction plan, etc. and afford necessary advice and recommendation to the Contractor.

(3) Approval of shop drawings, manufacturing drawings, etc.

The Consultant will examine and approve shop drawings, manufacturing drawings, application documents, etc., submitted by the Contractor.

(4) Confirmation and approval of construction equipment and materials as well as testing and training equipment.

(5) Report of progress of work

The Consultant will submit reports on progress of the work to the Burmese side.

(6) Inspection

Wherever necessary, the Consultant will inspect the facilities and equipment from the commencement of the work to completion to ensure the quality and function of the above facilities and equipment.

The Consultant will dispatch a resident engineer to the site to supervise the work through the whole period of the work.
In addition, the Consultant will send necessary engineers to the site to have them perform inspection, advice, and coordination, according to the progress of the work.
The Consultant will report progress, disbursement, completion, handing over, etc. of the Project to the Japanese Government authorities concerned.

4-6-4 Procurement Plan for Materials and Equipment

As far as the procurement of materials and equipment is concerned, it is difficult to obtain anything in Burma except building materials used for structural framing. Regarding testing and training equipment, any of them may not be produced in Burma. Therefore, they will have to be imported either from Japan or other country.

(1) List of the principal materials and equipment to be procured locally.

- cement
- aggregate (sand, gravel)
- bricks
- timber
- wooden fittings
- glass
- sanitation fixtures (local style)

(2) List of the principal materials and equipment to be imported from Japan or other country.

- steel and reinforcing bar
- ceiling boards
- paint
- aluminum
- spray tiles
- tiles
- plastic tiles
- roofing materials (asphalt shingles)
- electric wires and cables

- electrical panel light fixtures
- steel piping
- PVC piping and fittings
- bulbs
- pumps
- fans
- other miscellaneous materials

Of the materials and equipment to be procured locally, the main bulk materials such as cement, gravel and sand, bricks, etc. are obtained easily because they are produced in the vicinity of Pegu city.

4-7 Project Implementation Schedule

The implementation of the Project will start after the signing of Exchange of Notes between both Governments on the grant aid of the Government of Japan.
The Government of Burma appoints the Consultant, a Japanese corporation, and concludes a design and supervision contract with the Consultant. Following schedule after this is roughly divided into 3 categories; namely, the detail design, tender, and construction.

(1) Detail design

The Consultant will start detail design under the verification of the Government of Japan on the Consultant contract. In the Detail design stage, the Consultant will prepare tender documents such as detail design drawings, technical specifications, instructions to tenderers, on the basis of the Basic Design Study Report. In the course of the detail design, the Consultant will discuss the proposed facilities and equipment with the Burmese counterparts and obtain approval for the tender document from the Burmese side.
It will take about three months for the detail design.

(2) Tender

The Contractor shall be appointed using a system of tender. The tender is progressed in the order of publication of tender, tender, evaluation of tender result, appointment of the negotiator (lowest tenderer) and conclusion of contracts. It will take about two months for the above procedure.

(3) Construction

Construction will be started after the contract is concluded and verified by the Government of Japan. The construction period is estimated to be about 15 months including supply of equipment, considering the grade and scale of the facilities, and local meteorological conditions.

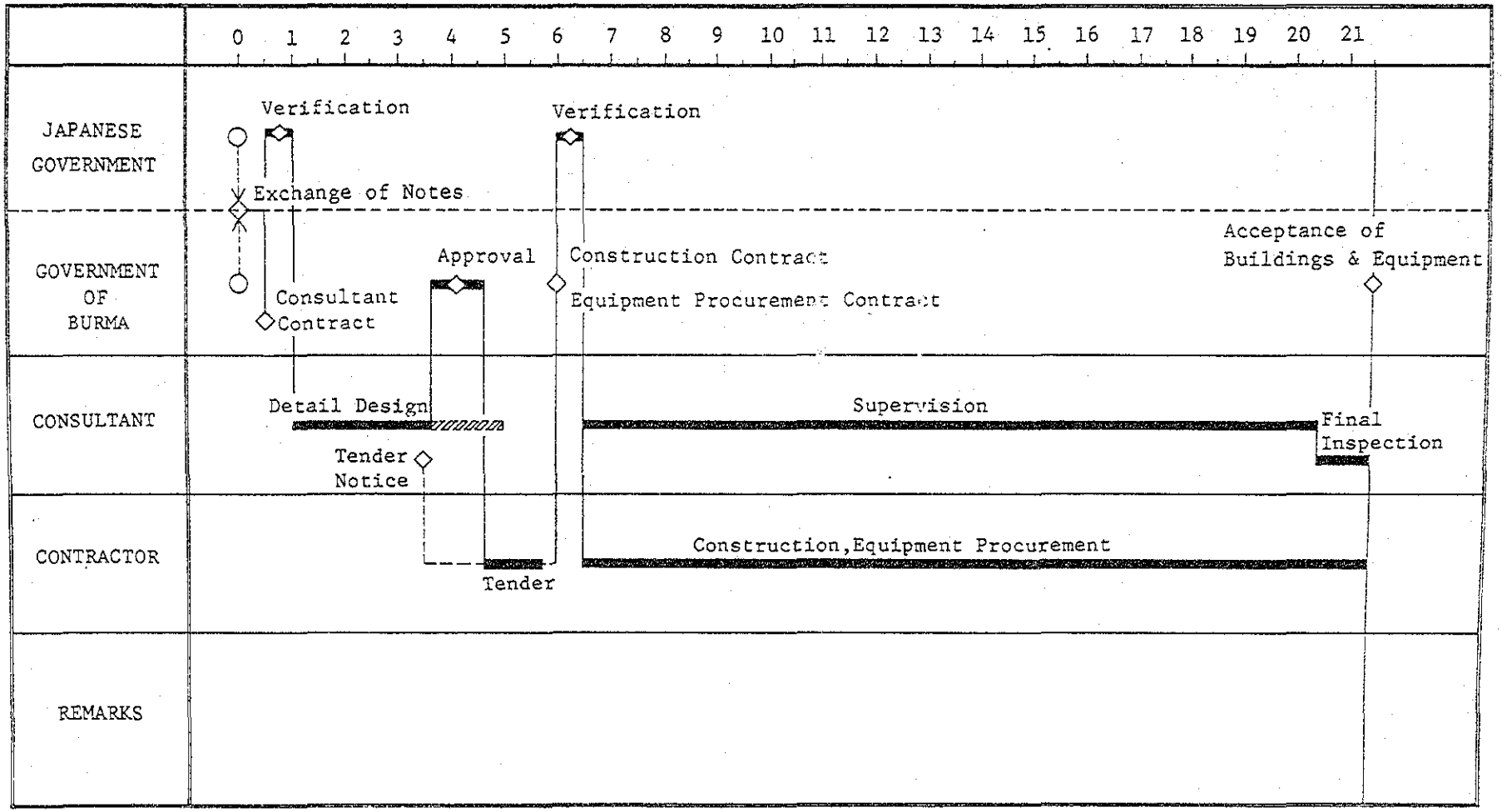


Fig. 4-10 Project Implementation Schedule

4-8 Maintenance and Administration Plan

(1) The Maintenance of Building and Equipment

Once the ITC facilities are opened ITC will be responsible for their maintenance. Easy maintenance has been taken into consideration in the formulation of the building and equipment plans. As further measures to facilitate maintenance, Burmese personnel to be responsible for the buildings, machinery and laboratory equipment, etc. will be given on-site training on operational and maintenance checking procedures once the construction nearly finishes and when the facilities are handed over upon the completion of construction. ITC will be presented with all of the relevant documents including operation manuals required in order to fully familiarize the maintenance procedures for the buildings and equipment.

(2) Administration Cost

The expenditure required for administration of the ITC facilities can be broadly divided into personnel expenses and operation costs.
A plan to increase the number of ID staff has been implemented in 1986, and it is expected that the quota for ID staff to be employed at ITC by the time the facility opens shall be sufficient.
The following table represents a provisional estimate of the salaries and the cost of lighting and other logistics for the 203 members of the teaching staff, based on figures for 1986.

1) Personnel expenses ..... 1,283,000 Ks/Year

Table 4-3 Personnel expenses for ITC Staff

position	basic monthly wage	monthly allow-ance	special allow-ance	total monthly wage	no.of person	monthly total
Project Director	1,200	240	480	1,920	1	1,920
Executive Engineer	1,000	200	400	1,600	4	6,400
Senior(AE-A) Engineers	800	160	320	1,280	7	8,960
Senior(AE-B) Engineers	700	140	280	1,120	11	12,320
Junior(SAE) Engineers	440	88	176	704	39	27,456
Junior(LA) Engineers	330	66	132	528	18	9,504
Junior(HC) Engineers	305	61	122	488	6	2,928
Assistants (Operators)	305	61	122	488	30	14,640
Assistants (Typists)	230	46	92	368	4	1,472
Assistants (Tracers)	220	44	88	352	31	10,912
Assistants A	200	40	80	320	8	2,560
Assistants B	125	25	50	200	4	800
Assistants C	110	22	44	176	40	7,040
	Total					106,912

Total personnel expenses (per annum)

106,912 x 12 = 1,282,944 = 1,283,000K

2) Operational costs 772,000Ks/Year

Electricity	267,000
Telephone	25,000
Building Maintenance	320,000
(repair to equipment, spare parts, consumable, etc.)	
Office communications expenses,	
other miscellaneous costs	160,000
Total operation costs	772,000

. Telephone charges

Calculated as a rate of 40 calls a day at 2.1K per 3-minute call. (this works out at 0.5 calls per day for the 80 staff members above the rank of SAE)

Therefore,

2.1 x 40calls/day x 25days/month = 2,100Ks/Month

2,100 x 12 = 25,200 Ks/Year

= 25,000 Ks/Year

. Electricity charges

Table 4-4 Monthly Electricity Charges

Name of building	Equipment load (kVA)	Hours per day	Day per month	Supply rate	Volume of electricity (kWH)
Administration & Training	183	8	25	0.5	18,300
Laboratory build.	318	8	25	0.3	19,080
Dormitories	133	6	30	0.5	11,970
Pump house	19	12	30	0.2	1,368
Total					50,718

The electricity charges for the power required to meet the needs of those facilities are as follows:

up to a volume of 500kWH 0.54 kWH

from 500kWH and over 0.44 kWH

Consequently, the electricity charges for these facilities are;
500kWH x 0.54Ks/kWH + (50,718kWH - 500kWH) x 0.44Ks/kWH =22,300Ks/Month

Annual charges are; 22,300Ks/Month x 12 Month = 267,000Ks/p.a.

3) Grand total 1) + 2) ..... 2,055,000 Ks/Year

(3) Assessment of maintenance and administration costs

A budget will be allocated through ID for the maintenance and administration expenses of ITC.
ID has appropriated 87,190,000Ks (4.45% of ID's Total budget, 1,959,860,000Ks) over the next four years from 1986 to 1989 for ITC.
In the meantime, 9,110,000Ks have been approved as maintenance and administration budget.
Operating budgets for ITC and ID are as follows.

Table 4-5 Operation Budget for ITC and ID

unit: 1,000 Ks

	1986/87	1987/88	1988/89	1989/90	TOTAL
Operating budget (ITC)	13,000	14,000	25,000	35,190	87,190
Operating budget (ID)	553,170	452,310	464,210	464,210	1,959,860

As previously mentioned, the estimated annual maintenance and administration cost for ITC is 2,055,000Ks, and if adjusted for an estimated average increase in the cost of living of 5.4% annually, the following figures are produced;

Table 4-6 Estimate Annual Operation Cost(1986 - 1989)

1986	1987	1988	1989	Total ITC budget
2,055,000	2,165,970	2,282,930	2,406,200	8,910,100 < 9,110,000

It is considered that there should be no particular difficulties encountered in keeping within the ITC budget allocated for maintenance and administration expenses.