DETAILED DESIGN REPORT
ON
CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE
IN
JOYDEBPUR, BANGLADESH

JULY 1975

JAPAN INTERNATIONAL COOPERATION AGENCY
JAPAN ENGINEERING CONSULTANTS CO., LTD.

C E R D I

Photo of the Proposed Buildings

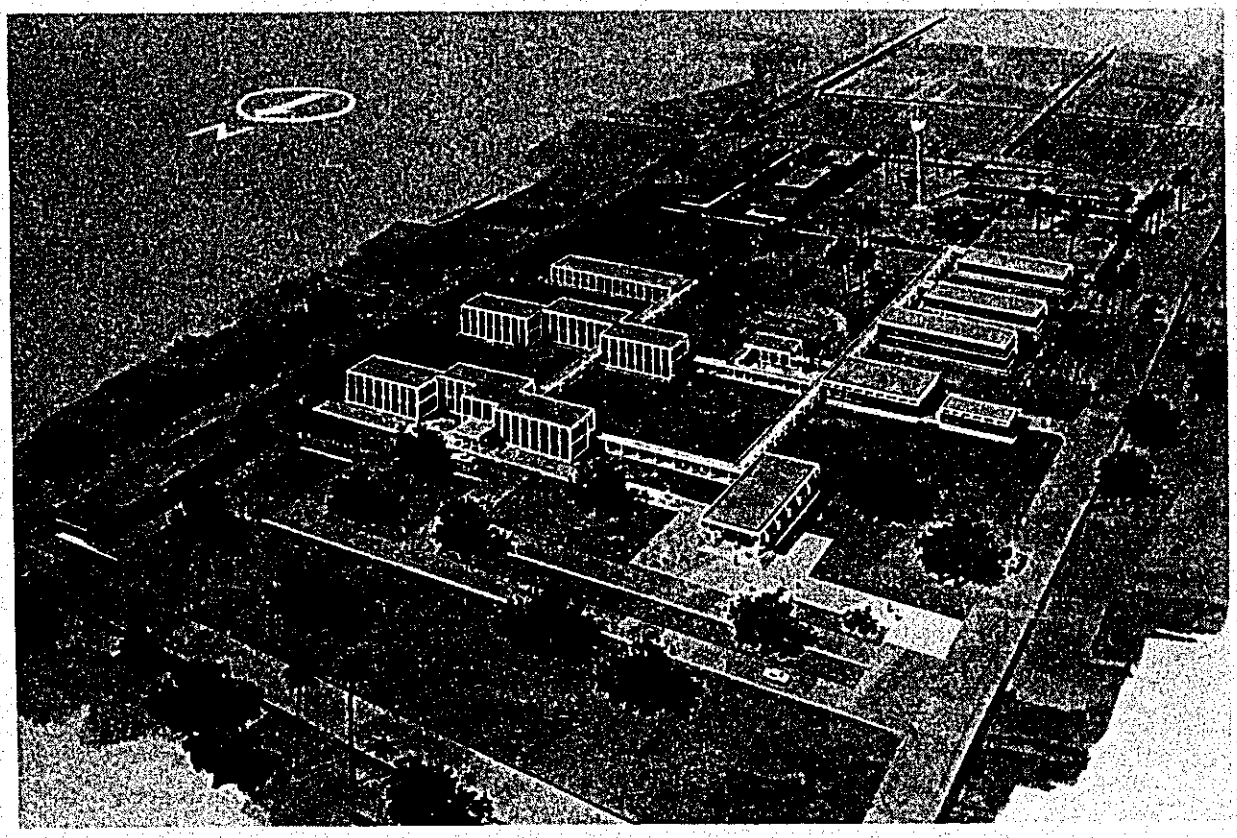


Table of Contents

LIST OF MAIN DRAWINGS

I. Design

Chapter 1 Introduction

This report presents the results of the detailed design study on the Central Extension Resources Development Institute (CERDI) for the Japan International Cooperation Agency by the Japan Engineering Consultants Co., Ltd., in conformity with the Agreement.

The report consists of design report, specifications, guidelines for cost estimates and design drawings.

In October 1974, a expert team headed by Dr. Shoichi Nakata of the Japan International Cooperation Agency was despatched to Bangladesh for the purpose of framing a policy of Japan's technical cooperation toward Bangladesh on agricultural development.

Through the deversified surveys and discussions with the officials of the Bangladesh Government, the team sustained their proposal on establishment of a central institute for development of extension resources which is sure to play an important role of raising food production in Bangladesh to self sufficiency level.

In March 1975, an Agricultural Cooperation Team headed by Mr. Yukio Ohata of the Japan International Cooperation Agency visited Bangladesh for the purpose of working out the details of technical cooperation on the CERDI. After a series of discussions with the authorities of the Government of Bangladesh, the Team signed on the Record of Discussions concerning the CERDI Project.

In April 1975, a team of the Japanese Government officials and the consultants conducted field investigations on the proposed site for CERDI and gathered sufficient data and information to carry out the detailed design study.

The design study was conducted to cover the entire facilities of CERDI including Main Buildings, Audio-Visual and Class Room, Assembly Hall, Machinery Workshop, Machine Sotre, Hostels, Field Management Building and Garage, all with electric, sanitary and plumbing, installations, etc.

Chapter 2 General Conditions and Investigations

2-1 The Land

Most of Bangladesh is a vast, low and almost flat alluvial plain. This plain is in places less than 30 ft above sea level. Though the country has scores of rivers, almost all are tributaries or distributaries of the three main rivers - the Ganges, the Jamuna and the Meghna. Except for the south-western higher part and the old alluvial tracts, the entire plain less than 20 ft above sea level is inundated every year during rains by the flooding of three rivers. Sometimes the flooding rises to the ground elevation of 30 ft above sea level.

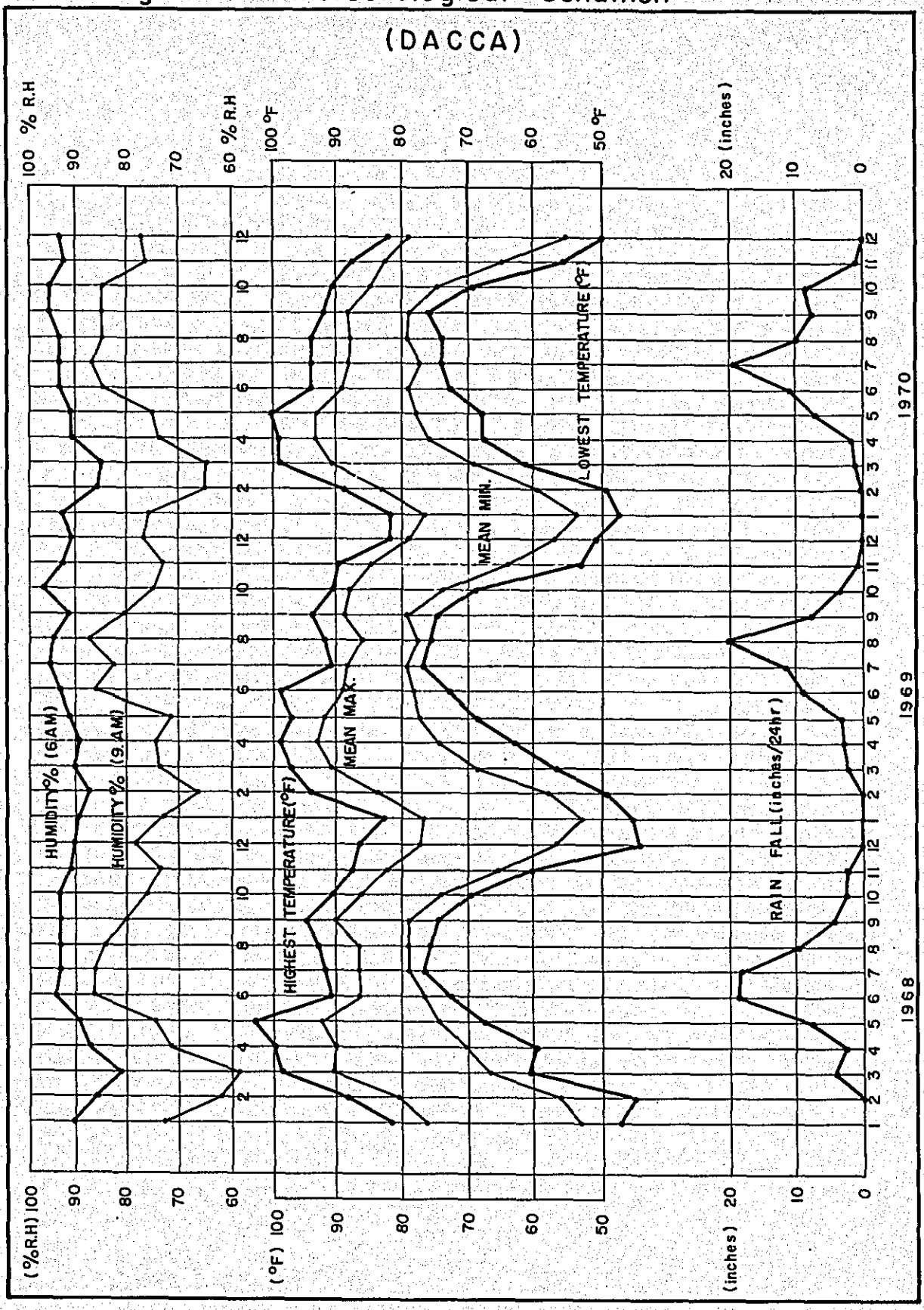
2-2 Climate

Bangladesh is generally said to have a typical tropical monsoon climate. As no part of Bangladesh is far from the sea, the range of temperature is small, though high humidity makes the heat oppressive.

Winters (November - February) are mild, dry and very pleasant. Maximum temperature at Dacca in January is 77.9°F (25.5°C).

Summer (March - May) temperatures are moderately high. The hottest month is April. The temperature falls during the rains and rises in September and October.

Fig 1 Meteorological Condition



The summer maximum is 95°F (35°C) to 100°F (37.8°C) in Dacca. The minimum over the plain is hardly below 70°F (21.2°C) (See Fig. 1).

Rainfall is heavy. The Bay of Bengal branch of monsoon wind breaks over the plain in June and causes heavy showers till October. The annual rainfall over the plain is 50 - 100 in. increasing towards the north-east.

Humidity is never less than 75% rising to 95% during rain.

The country is extremely vulnerable to cyclones sweeping from the Bay of Bengal.

2-3 The CERDI site

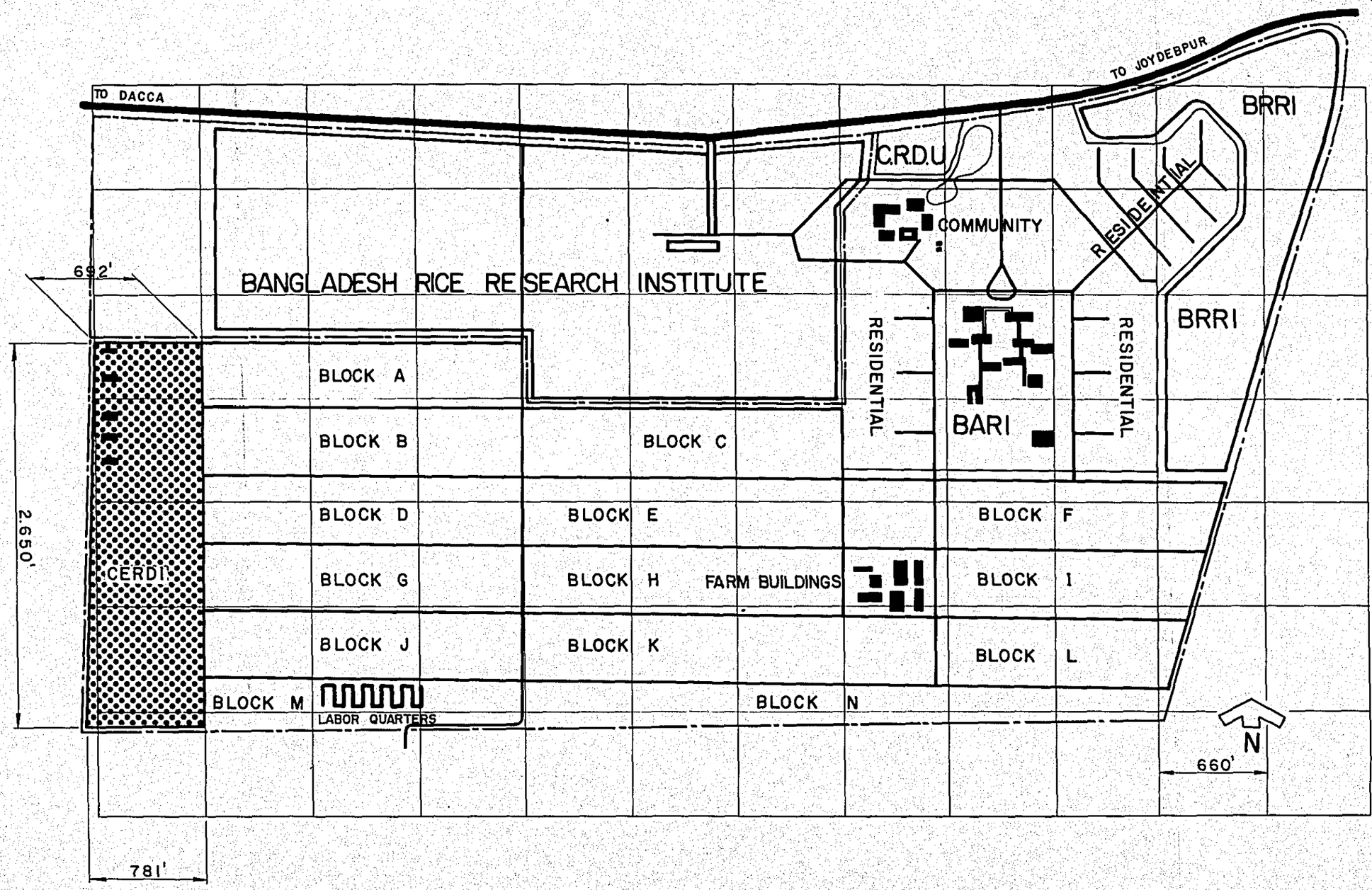
The CERDI site is located along the western border in the Joydebpur Agricultural Complex (BRRI, BARI), as shown in Fig. 2.

Based on discussion with the Ministry of Agriculture of Bangladesh, BRRI and BARI, the detailed design team confirmed the borders and made a survey of the site. The Complex Site comprises ARI, BRRI and CERDI, as shown in Fig. 2. In the master plan, 660 feet is used for one module length and a square area made in 660 feet x 660 feet is defined as 10 acres. Roads are planned to be constructed in a grid pattern from east to west and south to north.

The CERDI site was determined to be located along the above mentioned complex site roads with the

Fig. 2

LOCATION OF CERDI IN AGRICULTURAL COMPLEX



southwest corner of the concrete fences bordering at the west and south sides of the complex site as the base point. This site has a rectangle form extended from south to north with the width of about 700 feet being a little widened at the south and has the area of about 44.8 acres, as shown in Fig. 3.

The CERTI site is almost flat, though partially uneven, and about 70% of the site area is at 32 to 33 feet above sea level.

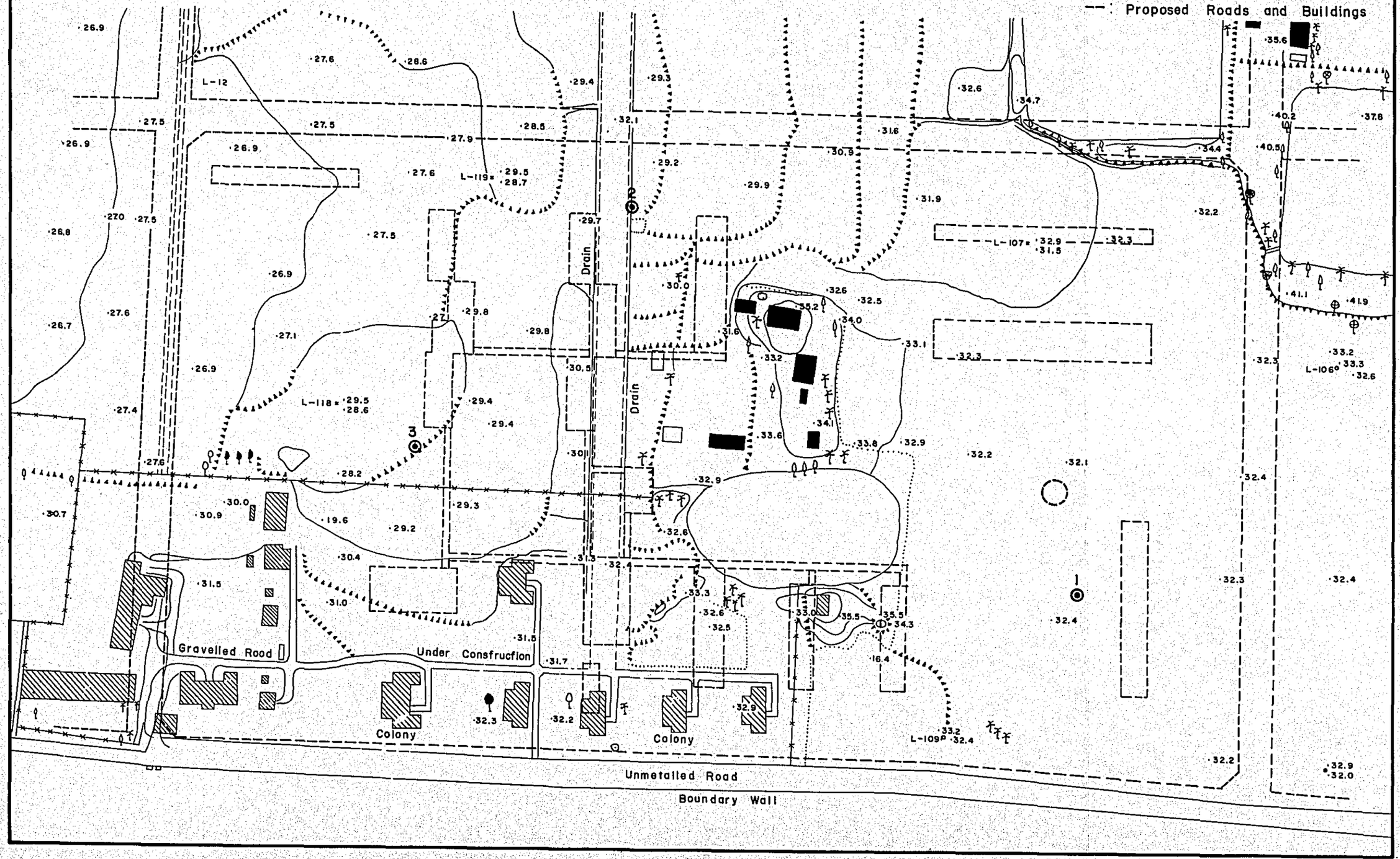
For the existing land use in the site, there are a brick office and several dwelling houses in the northern part close to the national road, and these building area occupies about 40% of the site. And the southern part in the site is used for paddies, where farm-houses are dotted. In this site, there are four tanks for irrigation water.

2-4 Sub-Soil Investigation

The boring and the standard penetration tests were executed to confirm the sub-soil condition in the CERDI site. Drilling was carried out at three points of No. 1, No. 2 and No. 3 as shown in Fig. 3.

No. 1 point is proposed at the site of water tank, and No. 2 and No. 3 points are at the site of main buildings. Boring was executed up to the depth of 20 m from the ground surface at No. 1 point and 8 m respectively at No. 2 and No. 3.

Fig. 3 Present Condition of Project Site



The standard penetration test was executed at 1.5 m intervals. The result of investigation is shown in Appendix 1.

2-5 Building Materials and Labor Force

The locally available materials are sand, bricks, chipped bricks and gravel, etc. The other building materials and products are locally not manufactured in a large quantity, and most of raw materials are imported. The local procurement of imported materials and products may be difficult because of expensive import duty, etc.

The labor force is relatively abundant, but there are only a few builders who can manage much labor force simultaneously and systematically.

2-6 Module

In Bangladesh, the foot-pond system is used, and the module of a building is arranged to suit the brick distribution of 10 in. long x 5 in. wide x 3 in. thick.

2-7 CERDI Organization and Original Proposal

The CERDI organization, shown in Fig. 4, has been agreed by the Bangladesh Government, and the original proposal shown in the "Report on Evaluation of the Scheme for Establishment of the Central Extension Institute" submitted on 23rd Oct., 1974, by the Japanese Specialist Team was considered as indispensable design constraint.

Fig. 4 Proposed Organizational Chart of the Institute

Director

Associate Director
(Chief of Japanese advisery group)
P.A. (1)
Steno(1)
Peon (1)

Crop Production Specialist)
Horiticulture Specialist)
Soil & Fertilizer Specialist)
Extension Specialist) Japanese
Agri. Mechanization Specialist) advisery
Agri. Machine Engineer) group
Irrigation Agronomist)
Co-ordinator/Interpretor)

P.A. (1)
Steno(1)
Peon (1)

Administration Div.

(Finance & Accounts Wing)

Dy. Director	1
Accounts Officer	1
Accountant	1
Budget Asstt.	1
Cashier	1
Bill Asstt.	1
L.D.A.	1

(Administration Wing)

Dy. Director	1
Office Supdt.	1
U.D.A.	3
L.D.A.	3

(Pool Service)

Steno-typists	8
Typists	6
Peons	10
Vehicle Drivers	8
Telephone Operator	2
Care-taker	1
Store-keeper	1
Electrician	1
Watchmen & Guards	6
Air-Conditioning Operator	1

Resources Development Div.

Principal Agronomist	1
Agronomist	1
Asstt. Agronomist	1
Irrigation Agronomist	1
Plant Protection Specialist	1
Asstt. P.P. Specialist	1
Horticulture Specialist	1
Asstt. Hort. Specialist	1
Soil & Fertilizer Specialist	1
Asstt. S.F. Specialist	1
Extension Specialist	1
Asstt. Extension Specialist	1
Farm Management Specialist	1
Asstt. Farm Manage. Spect.	1

(Farm Mechanization Sub-Division)

Farm Mechani. Spect.	1
Agri. Engineer (machine)	1
Agri. Engineer (engine)	1
Chief Mechanics	2
Asstt. Mechanics	2

(Pool Service)

Overseas	7
Tractor & Pump Operators	4
Draftsmen	2
Work-shop Helpers	3
Store keepers	1
Carpenter	1
Helper to Carpenter	1
Labourer	5

Information & Training Div.

Principal Information Officer	1
Information Officer	1
Training Officer	1
Publication Officer	1
Editor	1
Translators	2
Librarian	1
Cataloguer	1
Printing Machine Operator	1
Asstt. Operator	1
Book-binder	2

(Mobile Film Wing)

Unit Operator	1
Asstt. Operator	2

2-8 Earthquake, Cyclone and Bearing Power of Soil

Any damages caused by earthquake have not been found in the past, but, however, according to Japanese specialist's experience and the report written by Mr. Ahab Alam Khan in the local paper "The Bangladesh Observer" dated April 15, 1975, it cannot be concluded that no earthquake will occur at all in future.

Cyclones visit every year, and the wind velocity reaches 50 - 60 m/s.

Foundation ground is favorable in general, and pile foundation is used for the buildings of 4 stories or higher.

2-9 Electric Equipment

1) Incoming place: incoming from the transmission line on the national road

2) Incoming system: 3 phase, 3-wire, 11KV, 50HZ

3) Breaking capacity for incoming circuit breaker: 250MVA (as specified by C&B Superintending Engineer -Electrical-, Bangladesh)

4) Lightning rod: to be mounted

5) Electric apparatus and materials: there are only a few locally made apparatus and materials, and most are imported and expensive.

6) Standards: there are no standards to be noted.

2-10 Plumbing and Sanitary Equipment

1) Water supply and sewage system:
no

2) City gas system: no

3) Ground water penetration:
ground of clay allows little water penetration.

4) Plumbing apparatus and materials:
there are only a few locally made apparatus and materials, and most are imported and expensive.

5) Standards for design and installation:
no standards to be noted.

Chapter 3 Design

3-1 Climate

In most of the local buildings, walls, floors and roofs are made of effective materials for heat insulation such as bricks, plaster, etc. with small windows. The conceivable reason for it is that the prevention of direct rays of the sun provides bearable circumstances because the humidity is relatively low except for a wet season, though the temperature is high.

Therefore, also in this design, this local building style was applied, and when large windows are made, pent-roof are provided to avoid the direct rays of the sun as far as possible. Furthermore, corrugated asbesto-cement board, which is intended to work as sunshades with ventilating property, are mounted to raise the insulating effect on the roof faces.

In order to improve the ventilation of the respective rooms, windows or ventilation ports are provided on the opposite walls of south and north. For this reason, the plan of a middle corridor of the Main Buildings in the original proposal was discarded and the plan of a south-side corridor in principal was designed to raise the effect of a corridor-roof as a sunshade.

As the undesirable condition in a wet season would be sometimes caused by imperfect water tight window frames, aluminum sash is used for them in principle.

3-2 Site

The building site of CERDI was determined to locate in the northern half of the CERDI site, considering that it is close to the national road, a little higher than the southern part, convenient for a drain intended for the drainage system of the whole complex, and so on. The building site occupies 19.4 acres in the northern part, and, therefore, the field is 25.4 acres in the southern part.

The CERDI site is free from the flooding in view of past records, and it is not recognized to rearrange the site against flood.

The ground level arrangement should be carried out to meet the master plan of roads and drainage system of the whole complex site. Since the standard height of roads in the master plan is planned to be 3 feet higher than the present ground, the height of the planned road in the neighborhood of the CERDI site is considered to be about 34 feet (31 feet + 3 feet), which coincides with the height of the national road. The present height of peripheral roads at the west and south sides of the site is 32 ~ 33 feet. Therefore, it is appropriate to make the height of the building site 33 ~ 34 feet.

Then, the earth balance brought about by excavation and landfill within the CERDI site will be considered. On condition that the height difference between the building site and the field is planned to be 2 feet in view of the water logged paddy field, the preparation of the building site to 33.7 feet balances the earth volume within the CERDI site. However, considering the allowance

of 10 - 15% for landfill and the road plan of the complex, the leveling height of 33.5 feet seems to be most desirable. In this case, the excavated volume of earth will be 2,000,000 cft and the filled volume of earth will be 1,700,000 cft. Therefore, it is not necessary to carry earth from the other site.

In this detailed design, the ground level arrangement are planned as shown in Fig. 6, based on the height of 33.5 feet. The ground leveling should be completed before the commencement of the construction. The premises for the design and the cost of roads and pavement in the site were based on this ground elevation (33.5 feet above sea level).

3-3 Block Plan

In the CERDI block plan, the building site is divided into 5 blocks as shown in Fig. 5.

Block 1: Administration, resource development, information and training block, occupying the best location in relation with the main approach, quietness, etc.

Block 2: Farm mechanization facilities block, located at the field side.

Block 3: Common facilities block, located among the respective blocks and close to the approach.

Block 4: Accommodation facility block, located close to the approach.

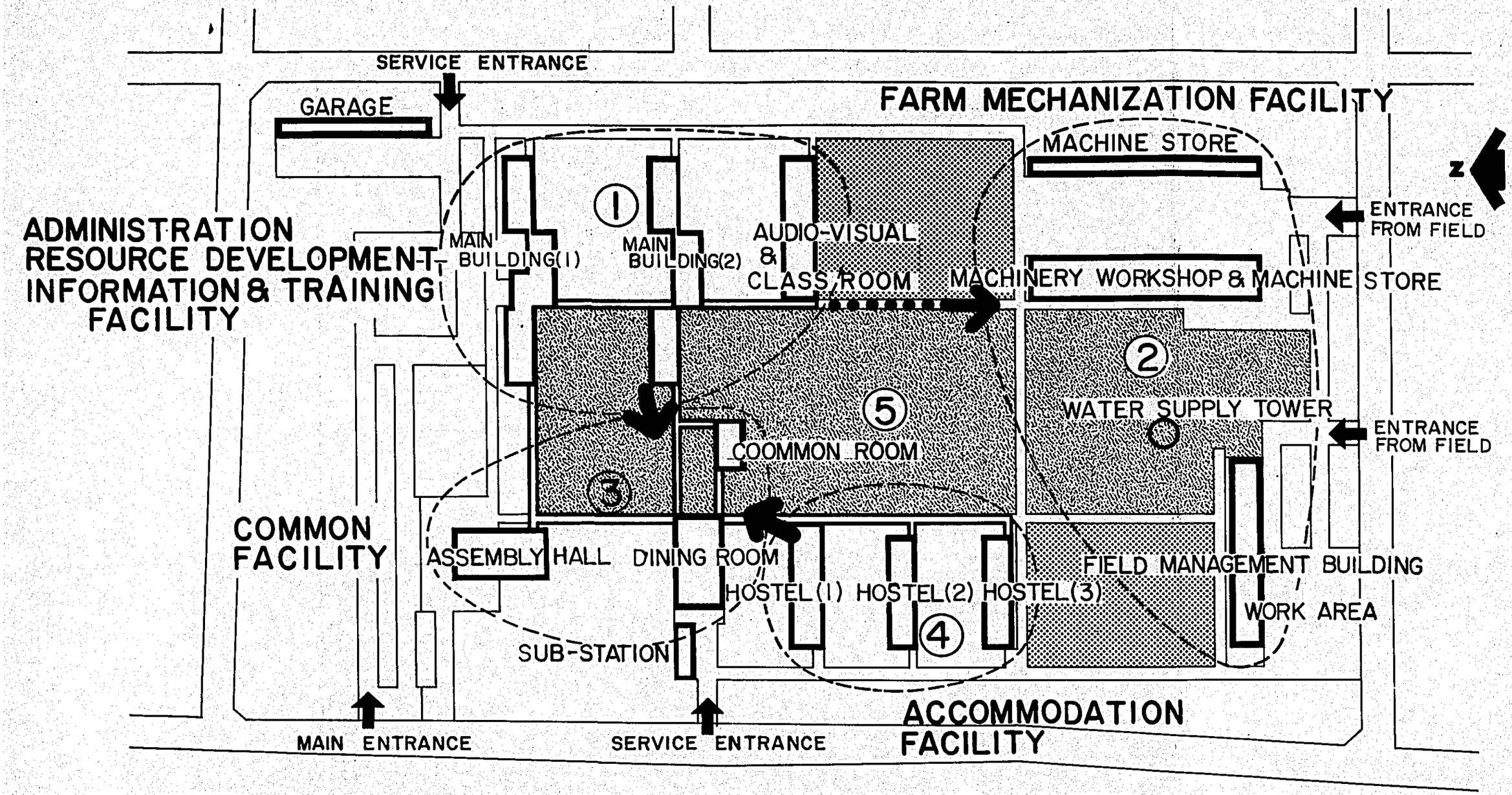


Fig.5 BLOCK PLAN

Block 5: Garden and recreation block, located as surrounded by the respective blocks, and as planned to be used for sports, walks and etc.

3-4 Drainage Plan

Drainage system in the CERDI is designed to meet the master plan of the Agricultural Complex as shown in Fig. 6. The outlet of the drainage canal is proposed at the point of northeast corner of the site.

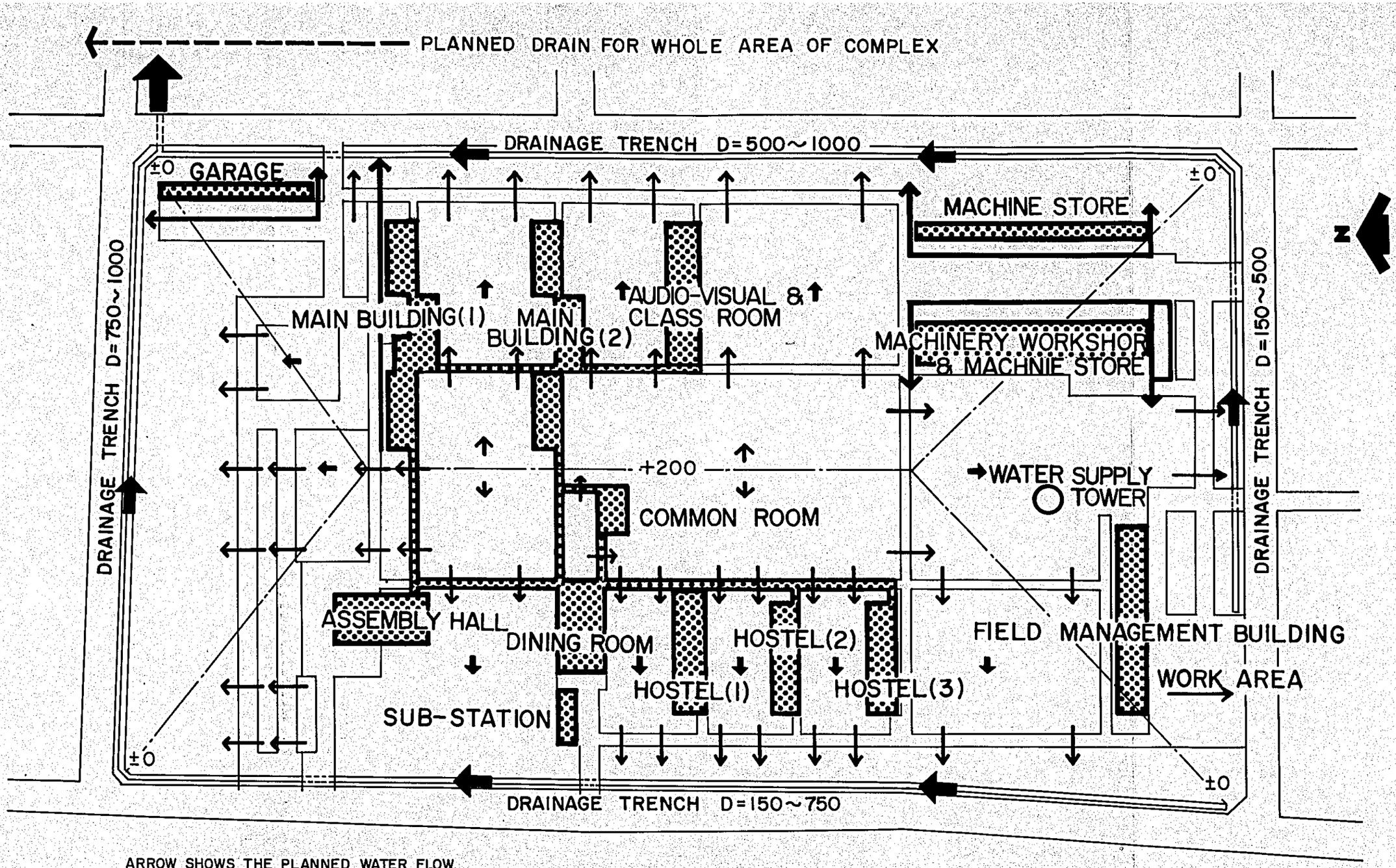
Rain water is designed to drain through the drainage canals excavated in the edges of the site.

3-5 Building Materials

Substantial material of the buildings is bricks which are used on all the wall. In addition to bricks, gravel, and sand, wood and materials for temporary works can be locally procured. All the other materials (cement, reinforcing steel, structural steel, sash, furniture, etc.) are to be transported from Japan.

3-6 Module

The indication of figures in the drawing is according to metric system, and since bricks are used as the main material, inch system is converted into metric system with an inch as a module.



ARROW SHOWS THE PLANNED WATER FLOW.

Fig. 6 DRAIN PLAN

3-7 Accommodation of Personnel

Every personnel is planned to accommodate in the room shown in the chart of Accommodation Personnel (Fig. 7), according to the building size and the CERDI organization in the original proposal.

3-8 Building Structure

According to the above considerations, 0.1 is taken as the coefficient of horizontal force by earthquake, and 66 m/sec is employed as the wind velocity by cyclones.

The colums, beams and floor slabs of main buildings are to be made of reinforced concrete, for further safety. In reference to the result of boring test, piling work is not necessary for the bearing power of soil of the site (See Appendix I).

3-9 Electric Equipment

1) The incoming place, incoming system, breaking capacity of an incoming circuit breaker, and lightning rod are according to the design conditions.

2) All the apparatus and materials used are to be of Japanese products. Therefore, the standards applied are to be Japanese.

3) In reference to BRRI facilities in designing, electric equipments are prepared upto the same level, but ceiling fans, private interphone equipment and telephone wiring for future are installed in the respective rooms.

Fig. 7 ACCOMMODATION OF PERSONNEL

Associate Director (1) — 1-201
(Chief of Japanese Advisory Group)

P. A.	(1)	1-203
Steno	(1)	
Peon	(1)	

Director (1) — 1-204

P. A.	(1)	1-203
Steno	(1)	
Peon	(1)	

(Japanese Advisory Group)

Crop Production Specialist	(1)	2-208
Horticulture Specialist	(1)	2-103
Soil & Fertilizer Specialist	(1)	2-203
Extension Specialist	(1)	2-104
Agri. Mechanization Specialist	(1)	2-114
Agri. Machine Engineer	(1)	12-105
Irrigation Agronomist	(1)	2-107
Co-ordinator / Interpretor	(1)	2-215

Administration Div.

(Finance & Accounts Wing)

Dy Director	(1)	1-104
Accounts Officer	(1)	1-109
Accountant	(1)	〃
Budget Asstt.	(1)	〃
Cashier	(1)	〃
Bill Asstt.	(1)	〃
L. D. A	(1)	〃

(Administration Wing)

Dy Director	(1)	1-104
Officer Supdt	(1)	1-108
U. D. A	(3)	〃
L. D. A	(3)	〃

(Pool Service)

Steno-Typist	(8)	1-114. 1-214. 2-115.
Typist	(6)	〃 〃 〃
Peon	(10)	None
Vehicle Driver	(8)	14-102
Telephone Operator	(2)	1-101
Care-Taker	(1)	1-102
Store-Keeper	(1)	13-102
Eletrician	(1)	6-101
Watchman & Guard	(6)	1-112. 6-101. 8-108
Air-conditioning Operator	(1)	6-101

Resource Development Div.

Principal Agronomist	(1)	2-108
Agronomist	(1)	2-107
Asstt. Agronomist	(1)	〃
Irrigation Agronomist	(1)	〃
Plant Protection Specialist	(1)	2-208
Asstt. Plant Protection Specialist	(1)	〃
Horticulture Specialist	(1)	2-103
Asstt. Horticulture Specialist	(1)	〃
Soil & Fertilizer Specialist	(1)	2-203
Asstt. Soil & Fertilizer Specialist	(1)	〃
Extension Specialist	(1)	2-104
Asstt. Extension Specialist	(2)	〃
Farm Management Specialist	(1)	2-114
Asstt. Farm Management Specialist	(1)	〃

(Farm Mechanization Sub-Division)

Farm Mechanization Specialist	(1)	10-105
Agri. Engineer (machine)	(1)	12-104
Agri. Engineer (engine)	(1)	〃
Chief Mechanics	(2)	12-106
Asstt. Mechanics	(2)	〃

Information & Training Div.

Principal Information Officer	(1)	1-212
Information Officer	(1)	1-213
Training Officer	(1)	〃
Publication Officer	(1)	〃
Editor	(1)	〃
Translator	(2)	〃
Librarian	(1)	1-209
Cataloguer	(1)	〃
Printing-Machine Operator	(1)	1-115
Asstt. Operator	(1)	〃
Book Binder	(2)	〃

(Mobile Film Wing)

Unit Operator	(1)	3-106
Asstt. Operator	(2)	〃

(Pool Service)

Overseers	(7)	13-103
Tractor & Pump Operator	(4)	13-112
Draftman	(2)	12-106
Workshop helper	(3)	12-108
Store-keeper	(1)	13-102
Carpenter	(1)	12-111
Helper to Carpenter	(1)	〃
Labourer	(5)	13-102

3-10 Plumbing and Sanitary Equipment

1) For water supply, water fed from a well as a water source are supplied to the respective buildings by the water supply tower.

2) For city gas in future, piping only is installed in the laboratories of the main building (2).

3) Sewage is flowed to drainage trench through septic tanks.

4) All the apparatus and materials used are to be of Japanese products.

5) The standards applied are to be Japanese.

ACCOMMODATION OF PERSONNEL

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS.
	MAIN BUILDING (1)		
1–101	Telophone Exchange Room	Telophone Operator	2
1–102	First–Aid Room	Care–taker	1
1–104	Dy. Derector Office	Dy. Derector	2
1–108	Assistant Clerk Office	Office Supote U.D.A L.D.A	1 3 3 7
1–109	Office Room	Account Officer Accountant Budget Assistant Cashier Bill Assistant L.D.A	1 1 1 1 1 1 6
1–112	Peon Room	Watchman & Guard	3
1–114	Typist Office	Steno–Typist Typist	1 2 3
1–115	Press Workshop	Printing Machine Operator Assistant Operator Book–binder	1 1 2 4
1–201	Associate Director Office	Associate Derector	1
1–203	Secretariat Room	P.A Steno Peon	2 2 2 6
1–204	Derector Office	Derector	1
1–209	Reading Room	Librarian Cataloguer	1 1 2
1–212	Rrincipal Information Office	Principal Information Officer	1

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS
1-213	Information Office	Information Officer	1
		Training Officer	1
		Publication Officer	1
		Editor	1
		Translator	2
			6
1-214	Typist Room	Steno Typist	1
		Typist	2
			3

MAIN BUILDING (2)

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS
2-103	Horticulture Specialit Office	Horticulture Specialist	1
		Asstt.Horticulture Specialist	1
		Horticulture Specialist (Japanese)	1
			3
2-104	Extension Specialist Office	Extension Specialist	1
		Asstt.Extension Specialist	2
		Extension Specialist (Japanese)	1
			4
2-107	Agronomist Office	Agronomist	1
		Asstt.Agronomist	1
		Irrigation Agronomist	1
		Irrigation Agronomist(Japanese)	1
			4
2-108	Principal Agronomist Office	Principal Agronomist	1
2-114	Farm Management Specialist Office	Farm Management Specialist	1
		Asstt.Farm Management Specialist	1
		Agri Mechanization Specialist (Japanese)	1
			3
2-115	Typist Office	Steno-Typist	6
		Typist	2
			8

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS
2–203	S&F Specialist Office	S&F Specialist Asstt S&F Specialist S&F Specialist(Japanese)	1 1 1 3
2–208	P.P. Specialist Office	P.P. Specialist Asstt.Specialist Crop Production Specialist (Japanese)	1 1 1 3
2–215	Adviser Room	Coodinator/Interpretor (Japanese)	1

AUDIO–VISUAL & CLASSROOM

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS
3–106	Operation Room	Unit Operator Asstt Operator	1 2 3

SUB–STATION

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS
6–101	Technician Room	Electrician Air Conditioning Operator Watchman & Guard	1 1 2 4

HOSTEL (2)

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS
8–108	Peon Room	Watchman & Guard	1

MACHINERY WORKSHOP & MACHINE STORE

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS.
12–104	Office Room	Agri. Engineer (Machine) Agri. Engineer (Engine)	1 1 2
12–105	Drawihg Room	Farm Mechani. Specialist Agri. Machine Engineer (Japanese)	1 1 2
12–106	Machine Operator Room	Chief Mechanics Asstt. Mechanics Draftman	2 2 2 6
12–108	Workshop	Workshop Helper	3
12–111	Machine–Tool Workshop	Carpenter Helper to Carpenter	1 1 2

FIELD MANAGEMENT BUILDING

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS
13–102	Worker Room	Labourer Store–Keeper	5 2 7
13–103	Thrashing & Processing Area	Werseer	7
13–112	Office Room	Tracktor & Pump Operator	4

GARAGE

ROOM NUMBER	ROOM NAME	PERSONNEL	NOS
14–102	Driver Room	Vehicle Driver	8

NOTE: PEONS ARE NOT ACCOMMODAED IN ROOMS (PEONS IO PERSONS)

Chapter 4 Construction Cost

4-1 Outline of Construction

The outline of respective buildings of CERDI is shown in Table 1.

4-2 Cost Estimates

Cost estimates for construction shown in Table 2 is made on the basis of the following conditions.

1) Materials

a. Bricks, aggregate, fixture materials, wood doors and materials for the temporary works are to be procured locally.

b. The other materials and products than the above are to be transported from Japan in principle.

2) Labor

a. All the labor force is to be procured locally. The labor costs of main occupational categories are given as follows, for example.

(as of April 1975)

Foreman	30TK/day
Labor	10-12 "
Carpenter	20 "
Scaffolding man	20 "

Table 1 Outline of Construction

	Item	Material and etc.	GF (M^2)	1F (M^2)	Total (M^2)	Remark
1	Main building (1)	column,beam,slab: R.C. wall: brick frame: aluminum	795.86	668.90	1,464.76	desk,chair,window-cooler ceiling-fan, lighting-fixture,etc.
2	Main building (2)	ditto	668.91	668.91	1,337.82	ditto and experiment
3	Audo-visual & Class-room	ditto	424.74	-	424.74	ditto
4	Assemby hall	ditto	309.67	-	309.67	desk,chair,ceiling-fan,lighting-fixture,lecture-table,etc.
5	Dining room	ditto	449.03	-	449.03	table,chair,ceiling-fan,lighting-fixture,kitchen-equipment,etc.
6	Sub-station	brick,beam,slab: R.C. steel door frame: aluminum	111.48	-	111.48	sub-station equipment,generator lead-in cable
7	Hostel (1)	brick,beam,slab: R.C. frame: aluminum	362.32	362.32	724.64	desk,chair,bed,ceiling-fan,lighting-fixture,toilet,shower
8	Hostel (2)	ditto	334.45	-	334.45	ditto
9	Hostel (3)	ditto	334.45	-	334.45	ditto
10	Common room	column,beam,slab: R.C. wall: brick frame: aluminum				table,chair,ceiling-fan lighting-fixture,toilet
11	Machine store	column,beam: steel, wall: brick roof: folded steel plate, steel shutter	449.03	-	449.03	chain-block,rail,lighting-fixture desk,chair,auto-lift
12	Machinery workshop & Machine store	brick,column,beam: steel, roof: folded steel plate, steel door, steel shutter	1,040.51	-	1,040.51	chain block,lighting-fixture, desk,chair,auto-lift,rail
13	Field management building	ditto	619.35	-	619.35	thermo-humidistatic equipment lighting-fixture,toilet
14	Garage	ditto	297.29	-	297.29	lighting-fixture,toilet
15	Corridor	column,beam,slab: R.C.	667.13	-	667.13	lighting-fixture
16	Exterior construction	pavement: asphalt,etc., drain water supply tower,etc.	-	-	-	bore well,pump,supply & waste-pipe sepetic tank, external main line

Table 2 Cost Estimates

(,000 yen)

	Item	Architectural Work	Electric Equipment Installation	Plumbing & Installation	Sub Total	Transportation	Total
1	Main building (1)	73,920	8,427	2,737	85,084	3,483	88,567
2	Main building (2)	65,942	8,810	4,137	78,889	3,270	82,159
3	Audio-visual & Class room	24,324	3,840	447	28,611	1,121	29,732
4	Assemby hall	29,205	1,944	418	31,567	1,100	32,667
5	Dining room	21,513	2,423	9,691	33,627	1,290	34,917
6	Sub-station	5,643	54,266	-	59,909	4,586	64,495
7	Hostel (1)	31,749	2,105	2,823	36,677	1,289	37,966
8	Hostel (2)	17,944	1,509	1,915	21,368	699	22,067
9	Hostel (3)	17,526	1,509	1,929	20,964	661	21,625
10	Common room	6,679	964	363	8,006	204	8,210
11	Machine store	26,718	1,177	211	28,106	1,276	29,382
12	Machinery workshop & Machine store	47,414	3,620	971	52,005	2,242	54,247
13	Field management building	31,635	2,353	19,217	53,205	2,677	55,882
14	Garage	15,476	960	400	16,836	730	17,566
15	Corridor	16,812	377	-	17,189	266	17,455
16	Exterior work	50,948	17,475	21,641	90,064	3,995	94,059
	Total	483,448	111,759	66,900	662,107	28,889	690,996
	Consultant's fee						60,000
	Grand Total						750,996

Welder	20TK/day
Electrician	30 "
Helper for above	16 "
Crane operator (large crane)	30-35 "
Bricklayer	20 "
Helper for above	15 "

3) Transportation

a. The material transportation from Japan to Bangladesh is to be made collectively by ship in principle.

b. The transportation from the destination port, Chittagon, Bangladesh, to the building site is made by truck in principle.

4) Others

a. All the materials and products, etc. transported from Japan are to be free from taxes and duties (any commodity taxes in Japan and any import duties in Bangladesh).

b. The period of construction is 15 months including 2 dry seasons.

c. The Consultant should be used for the supervision and the scope of works on the services is given in Appendix II.

Chapter 5 Implementation

5-1 Construction Schedule

The construction schedule shown in Fig. 8 is made on the following conditions.

1) The term of construction is 2 dry season with 1 wet season in-between covering 15 months.

2) A builder with experience should execute the works, and be able sufficiently to meet the progress of works.

Fig 8 CONSTRUCTION SCHEDULE

※1. INCLUDES BRICK SOILING, ARRANGEMENT OF BAR, LAYING CONCRETE, LEVELING CONCRETE AND ETC.
※2. INCLUDES COLUMN, BEAM, ARRANGEMENT OF BAR & LAYING CONCRETE OF I.F. SLAB AND ETC.
※3. (DITTO) RF (DITTO)

MONTH / TERM		'75 6	7	8	9	10	11	12	'76 1	2	3	4	5	6	7	8	9	10	11	12	'76 1	2
SEASON		WET							DRY						WET					DRY		
AUXILIARY WORK & EARTH WORK		BID				SELECTION OF CONTRACTOR			TEMPORARY WORK & TRANSPORT OF MATERIAL													
① MAIN ② BUILDING (1)(2)	RC B								※1		※2		※3									
③ AUDIO-VISUAL & CLASS-ROOM	RC B								※1		※2											
④ ASSEMBLY HALL	RC B									※1		※2										
⑤ DINNIG ROOM ⑩ COMMONROOM	RC B									※1		※2										
⑦ HOSTEL(1)	RC B								※1													
⑧ ⑨ HOSTEL(2)(3)	RC B									※1												
⑥ SUB-STATION	RC B								※1													
⑫ MACHINERY WORK SHOP MACHINE & STORE	RC B S																					
⑪ MACHINESTORE	RC B S																					
⑬ FIELD MANAGMENT BUILDING	RC B S																					
⑭ GARAGE	RC B S																					
⑮ CORRIDOR	RC												※1									
⓪ EXTERIOR WORK						BORING WELL EXCAVATION						WATER PROOFING ETC.			WATER SUPPLY TOWER				ROAD & WORK AREA			
												WATER STORAGE TANK										

LEGEND & REMARK

RC : REINFORCED CONCRETE
B : BRICK
S : STEEL

EXCAVATION
FOUNDATION
CONCRETE SLAB ON GROUND
GROUND FLOOR
G. F. WALL (BRICK)
FIRST FLOOR
I. F. WALL (BRICK)
ROOF WATER PROOFING (L.C)
ROOF SLAB (R.C)
CEILING SLAB (R.C)
COLUM BEAM (STEEL)
ROOF (STEEL)
FINISH

APPENDIX I. REPORT ON SUBSOIL INVESTIGATION

Report on Subsoil Investigation

INTRODUCTION

M/s Solitech International Ltd. was entrusted by Japan International Cooperation Agency with the execution of Subsoil Investigation for Central Extension Resources Development Institute at Joydebpur, Dacca.

The object of this investigation was to ascertain the subgrade conditions of the site and ultimately to establish physical & mechanical properties of the subsoil with a view to recommend the safe and economic foundation design for the superstructure.

The investigation was done as per specification. The boring points were located by the client's representative at site.

SUBSOIL INVESTIGATION PROGRAMME

The subsoil exploration programme comprised of the following item of works.

a) Execution of Drilling by Rotary Method

In all 3 (three) Nos. of borings were executed at site of which borehole No. 1 was executed upto 65 ft. and the remain 2 boreholes were executed upto 30 ft. each.

b) Execution of Standard Penetration Test

Standard penetration tests were executed at a regular interval of 5 ft. depth from the existing grounds level by using a split spoon sampler of $1^3/8$" internal dia and a hammer of 140 lbs, falling freely from a constant height of 30" inches. The N - values thus obtained for one foot penetration of the sampler were recorded and were shown on the borcharts against the respective intervals of tests. These tests provide a fair knowledge about the density/compaction of the soil layers tested and in addition yield disturbed/semidisturbed soil samples from within the split spoon sampler used during the tests. These soil samples were dully classified in order to re-construct a depthwise stratification chart for each borehole and were preserved in airtight state for further test in the laboratry.

c) Ground water table was also recorded from each bore-hole. No undisturbed soil samples were collected as there was no such provision for laboratory tests.

GENERAL DESCRIPTION OF THE SUBSOIL

The general condition of the subsoil of the area under observation, as revailed from the borcharts appended to this report are almost regular rather than erratic and are correlatable. The subsoil of the area upto the final depth is mainly cohesive and are comprised of silt.

The subsoil can be split up into 5 (five) broad units as follows.

a) Light brown & grey spoted medium stiff plastic clayey silt.

b) Light brown & grey soft to medium stiff sandy silt, trace clay.

c) Light brown & grey spoted stiff silt with plastic clay occassional oxidized matter.

d) Grey very stiff plastic clayey silt.

e) Light brown & grey spoted very stiff silty plastic clay.

There is no indication about the structural disturbances or geological anomaly within the area explored.

BEARING CAPACITY OF THE SUBSOIL

The bearing capacity of the subsoil at different depths can be obtained from the field as well as laboratory test results. In case of cohesive soil the reliable values can only be obtained from the laboratory test results, but in case of no cohesive soil the N - values are used. But as no laboratory tests have been executed on the soil samples, in that case the bearing capacities of the cohesive soil can be estimated with the help of N - values.

The allowable bearing capacities of the subsoil for square & continuous footings at a depth of 5 ft. from the existing ground level can be considered as 0.646

& 0.531 ton/sft. respectively whereas at depth of 10 ft. these valued can be estimated as 0.904 & 0.744 ton/sft. respectively.

CONCLUSIONS AND RECOMMENDATIONS

It is evident from the foregoing discussions that the subsoil upto the final depth of boring is mainly comprised of silt. It is also learned that a single storied building shall be constructed at site and hence we recommend the use of footing foundations (eigther square or continuous) at 5 ft. depth from the existing ground level.

If square footings are provided under the structure, the allowable soil bearing pressure of 0.646 ton/sft. upto a depth of 5 ft. can be considered safe against shear failure.

On the other hand, if continuous footings are used, the allowable soil bearing pressure of 0.531 ton/sft. can also be considered safe for that depth.

SOILTECH
INTERNATIONAL LIMITED
DACCA–CHITTAGONG

Client:–JAPAN INT. CO-OPERATION AGENCY
Site:– CENTRAL EXTENSION RESOURSE DEV. INSTITUTE JOYDEBPUR, DACCA.
Bore chart of Boring No. ---------- 1

DATE	REDUCED ELEVATION	DEPTH	THICKNESS	STRATA ENCOUNTERED	LOG	DIA. OF BORING	STANDARD PENETRATION TESTS blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS (G.W.T. SOIL SAMPLES VANE SHEAR TESTS Lbs./sq in.)
11-4-75	REDUCED ELEV.	12'-0"	12-0"	Light brown & grey spoted med. stiff plastic clayey SILT		64'-6", 5" ø Rotary method	5	5'-6" ▼5'-7"
		26'-0"	14'-0"	Light brown & grey spoted stiff SILT with plastic clay			8, 7, 9, 12	10'-6", 15'-6", 20'-6", 25'-6"
		37'-0"	11'-0"	Brown & grey spoted stiff SILT with plastic clay & oxidised matter			14, 15, 16, 17	30'-6", 35'-6", 40'-6", 45'-6"
		48'-0"	11'-0"	Grey very stiff plastic clayey SILT			19, 21, 21	50'-6", 55'-6", 60'-6"
12-4-75		66'-0"	18'-0"	Light brown & grey spoted very stiff silty plastic CLAY			23	65'-6"

DISTURBED SAMPLE ---▨ UNDISTURBED SAMPLE ---■

DRN:– DATE:–17-4-75 SCALE:– 1"=10' ST-879/D PLAN No.

SOILTECH
INTERNATIONAL LIMITED
DACCA–CHITTAGONG

Client :– JAPAN INT. CO-OPERATION AGENCY
Site :– CENTRAL EXTENSION RESOURSE DEV. INSTITUTE JOYDEBPUR, DACCA.
Bore chart of Boring No. ---------- 2

DATE	REDUCED ELEVATION	DEPTH	THICKNESS	STRATA ENCOUNTERED	LOG	DIA. OF BORING	STANDARD PENETRATION TESTS blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS (G.W.T. SOIL SAMPLES VANE SHEAR TESTS Lbs./sq in.
15-4-75	REDUCED ELEV.	12'-0"	12'-0"	Light brown & grey soft to med. stiff sandy SILT; trace clay		29'-6", 5" ø Rotary method	4	5'-6"
		17'-0"	5'-0"	Light brown & grey stiff SILT with clay			6	10'-6"
							14	15'-6"
		31'-0"	14'-0"	Light brown & grey stiff clayey SILT			16	20'-6"
							13	25'-6"
							14	30'-6"

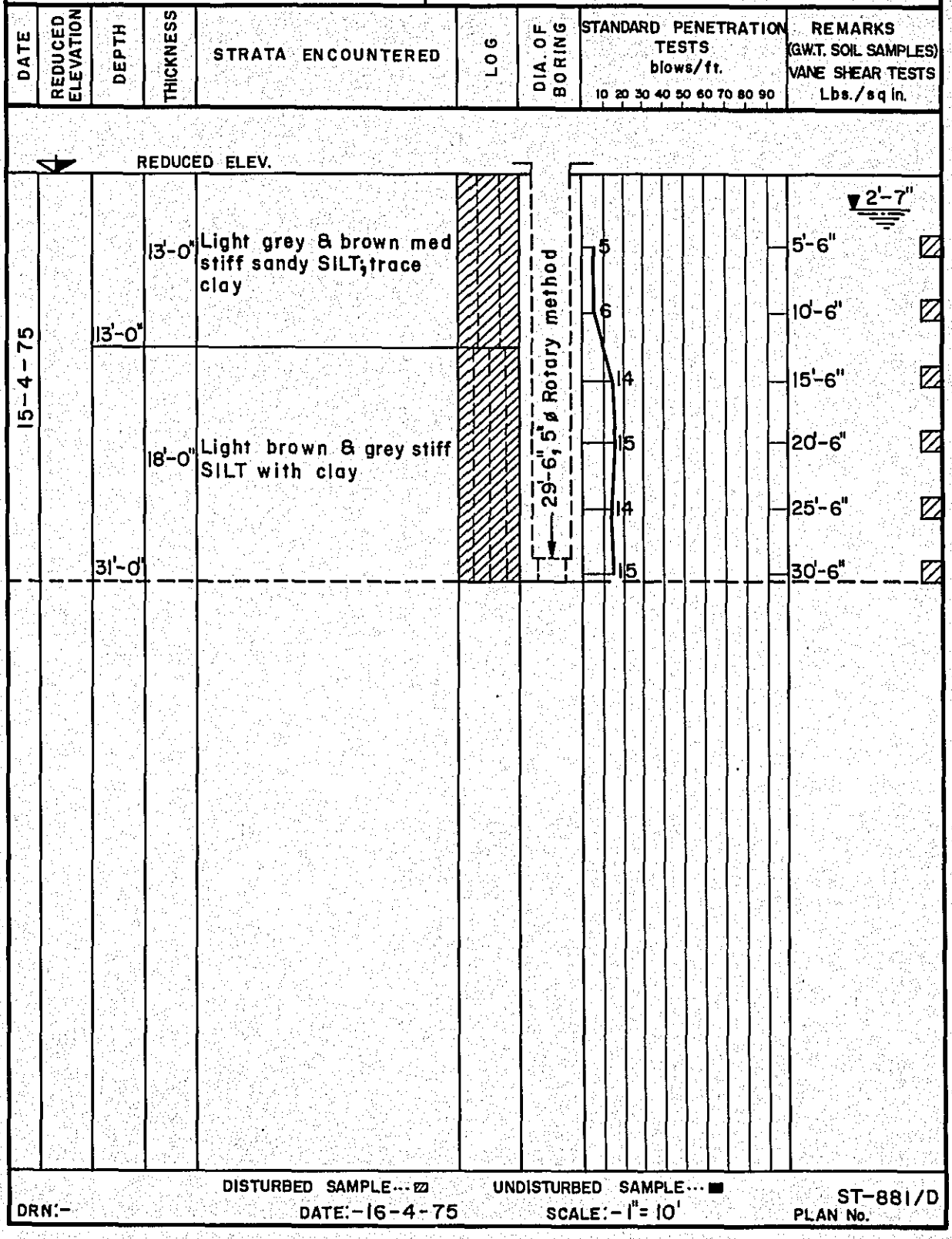
4'-0"

DISTURBED SAMPLE ···· ▨ UNDISTURBED SAMPLE ··· ■

DRN :–
DATE :– 17–4–75
SCALE :– 1" = 10'
ST-880/D
PLAN No.

SOILTECH
INTERNATIONAL LIMITED
DACCA-CHITTAGONG

Client:-JAPAN INT. CO-OPERATION AGENCY
Site:-CENTRAL EXTENSION RESOURSE DEV. INSTITUTE JOYDEBPUR, DACCA.
Bore chart of Boring No. ---------- 3



DISTURBED SAMPLE ▨ UNDISTURBED SAMPLE ■

DRN:- DATE:-16-4-75 SCALE:-1"=10' ST-881/D PLAN No.

APPENDIX II. DRAFT ON CONSULTANT'S SERVICES

Chapter 1 Scope of Works

1-1 Objectives

The purpose of the consultant's services is to assist the Government in the effective implementation of the CERDI Project. The consultant's services are divided into the following aspects:

1) Supervision of the building construction in the CERDI site;

2) Assistance in settling disputes of differences that many arise among the related organizations.

3) Examination on materials and products procured in Bangladesh and Japan.

4) Suggestion on transportation of materials for the Project.

1-2 Period of Services

Period of consulting services will cover 15 months from the conclusion of construction agreement to the completion.

1-3 Expertise

The consultant's team will include the following experts:

1) One or more architectural engineers, who will be responsible for the design of buildings and will work in full time as the general responsible supervisors of the construction in the site for 15 months;

2) One or more electric engineers, who will be responsible for the design of electric equipment and will supervise the installation in the site according to the need;

3) One or more plumbing engineers, who will be responsible for the design of plumbing, sanitary and thermo-humidistic equipment and will supervise the plumbing and installation according to the need.

Chapter 2 Services to be provided by the Bangladesh Government

The Bangladesh Government will provide the following services for carrying out the consultant's services.

2-1 Information related to the CERDI Construction

All available documents, drawings, maps, statistics, data and others, and necessary informations for adjustment within the Agricultural Complex.

2-2 Opportunities for the Following Adjustment with the Concerned Organization: that is,

1) Promotion of meeting and adjustment within the Agricultural Complex according to the need;

2) Adjustment on the incoming method of electric power with the concerned organization;

3) Adjustment on the other problems related to the CERDI construction with the concerned organization.

2-3 Facilities and Counterpart Personnels: that is,

1) An consultant's office for supervision in the construction site, and necessary equipments and materials;

2) Suitable full-time counterpart personnels for the consultant's service.

2-4 Services to exempt the Consultant from (or to bear the cost of) any taxes, duties, fees, levies and other impositions imposed under its laws and regulations in respect of:

1) Any payment made to the consultants for carrying out their services;

2) Any necessary equipment and materials brought into the Government territory for carrying out their services;

3) Any property brought by the members of the consultants for their personal use and consumption.

Chapter 14 Finishing

14-1 Site Terrazzo Finishing

Kinds of stones, coating thickness, etc. shall be as illustrated in the drawings, and samples shall be submitted beforehand for approval by the supervisor.

II. Specifications

Chapter 1 General

1-1 Units and Standards

Units of length, area, volume, mass (weight), etc. are indicated as a metric system and JIS (Japan Industrial Standard) and JASS (Japan Architectural Standard Specification) are used in these specifications and drawings.

1-2 Outline of the Construction

1) Title of the Construction

Central Extension Resources Development Institute Project.

2) Land

a. Place name: Agriculture Complex, Joydebpur, Dacca, Bangladesh
b. Area: 76,207.30 m^2

3) Buildings

a. Kind of construction: New construction
b. Main structure: Ferro-concrete, Brick, Brick-steel
c. Building area: 8,051.25 m^2
d. Total floor area: 8,703.71 m^2
e. Floor area by building

i. Main building (1)	G. fl.	795.86 m^2
	1 fl.	668.90
	Total	1,464.76 m^2

ii. Main building (2)	G. fl.	668.91	m^2
	1 fl.	668.91	
	Total	1,337.82	m^2
iii. Audio visual class room		424.74	m^2
iv. Assembly hall		309.67	m^2
v. Dining room		449.03	m^2
vi. Substation		111.48	m^2
vii. Hostel (1)	G. fl.	362.32	m^2
	1 fl.	362.32	
	Total	724.64	m^2
viii. Hostel (2)		334.45	m^2
ix. Hostel (3)		334.45	m^2
x. Common room		139.36	m^2
xi. Machine store		449.03	m^2
xii. Machinery workshop		1,040.51	m^2
xiii. Field management building		619.35	m^2
xiv. Garage		297.29	m^2
xv. Corridor		667.13	m^2

4) Extent of the Construction

All the facilities, labor, construction equipment and materials necessary to complete the construction described in the design drawings, specifications, site explanatory notes and construction contract shall be supplied, and all works shall be executed under appropriate management.

a. Building Construction
   i. Construction of building
   ii. Electric equipment installation
   iii. Sanitary plumbing and thermo-humidistatic equipment installation

b. Exterior construction (including various facilities in the site)

i. Paving of roads and other places
ii. Water supply tower construction

c. Furniture and utensils (shown in the drawings and specifications)

5) Terms of Works

a. Commencement: After the contractor is selected

b. Completion:

1-3 General Common Terms

1) Scope of the Specification

The works based on the drawings and specifications shall be performed always according to the instructions of the supervisor, and the specifications shall be according to the Common Specification for Building Construction, Common Specification for Electric Equipment Installation, and Common Specification for Mechanical Equipment Installation instituted by Government Buildings Department, Minister's Secretariat, Ministry of Construction of Japan, and otherwise to this special specification, in completing the construction. However, the site explanatory notes and the specifications entered in the drawings shall be treated in perference to these specifications. The paragraphs in these common specifications which are not relating to this construction at all shall not be applied.

In the respective works, the matters concerned with other works shall be referred to the description of the mentioned other works.

The sizes and forms which are not given in structure drawings shall be taken from the other detail drawings. If there are differences between structure drawings and the other detail drawings, the works shall be performed according to the instructions of the supervisor.

The indication (see ....) in this special specification suggests to refer to the item concerned of the Common Specifications.

The "special specification" in the Common Specifications refers not only to this special specification but also to those drawings.

2) Supervisor

The supervisor in this construction refers to an authorized architect for supervision, or his representative or his site clerk. All the instructions, approvals and inspections made by him through his site representative shall be regarded to be made on the authority and responsibility of the authorized architect. In this case, the important matters out of those instructed and approved by the supervisor shall be promptly confirmed in writing with his seal.

3) Doubts and Slight Alterations

If there are any differences in the contents of drawings and specifications, unless clearly stated, all shall be according to the instructions of the supervisor. In this case, slight alterations in material sizes, fitting positions of fitting methods in view of settlement, fitting etc. on the site, or in adjustment of fitting

quantity due to the above, and so on shall be performed according to the instructions of the supervisor. In this case, the contract amount shall not be adjusted.

4) Photos of Construction

The photos of construction (see 1.6.1(a) in the Common Specifications) shall be taken according to the instructions of the supervisor (as shown in Table 1), and shall be attached to specified forms for submission.

Table 1

Shooting Place	Shooting Time	Number of Shooting Times	Remarks
Status quo of site (4 places)	Before start of construction	4 each	3 copies each in cabinet size
Under construction (4 places)	Twice a month during construction	4 each	- " -

5) Drawing of Completion Construction

When the construction is completed, general drawings, sectional detail drawings, detail drawings of principal portions, completion drawings of electric equipment installation, and sanitary plumbing and thermo-humidistatic equipment installation shall be prepared, and each original drawing with copies of blueprints shall be submitted to the supervisor.

6) Photos of Completion Construction

When the construction is completed, completion photos shall be taken according to Table 2, and submitted according to the specified form.

Table 2

	Shooting Place	Number of Shooting Times	Remarks
Photo A	Main interior & exterior points according to instructions	Black & White 50	4 copies each in cabinet size (in albums with negative)
Photo B	- " -	Color 20	5 copies each in cabinet size (in albums with negative)

Chapter 2 Temporary Work

2-1 Status quo Photos

The site photos to be submitted before commencement of the construction shall be taken according to the instructions of the supervisor to record the full view of the site by shooting at 10 places or more by way of continuous photos and bird's eye photos, etc. Furthermore, the topographic features and planimetric features which may cause troubles during construction or after construction shall be photographed according to the instructions of the supervisor.

2-2 Supervisor's Office

The supervisor's office shall be as wide as about 35 m^2 (see 2.3.3 (a) in the Common Specifications, and kind of the office shall be according to "Class 3").

Chapter 3 Earthwork

3-1 Excavation (see 3.2.1 in the Common Specifications)

In excavation, if a defective portion is found partially at predetermined depth, further excavation for reinforcement shall be made according to the instructions of the supervisor.

3-2 Back Filling (see 3.2.3 in the Common Specifications)

Back filling shall be according to "Class A" of Table 3.2.1 in the Common Specifications.

3-3 Surplus earth disposal (see 3.2.5 in the Common Specifications)

The surplus earth shall be disposed according to the instructions of the supervisor, (planned to be disposed within the site).

3-4 Test for Bearing Power of Soil

1) The test for bearing power of soil shall be conducted according to the plate loading test.

2) Testing Equipment

a. The loading platform shall be a square steel with 300 mm x 300 mm size and 25 mm thickness, and the

lower face shall be plane and not deformed.

b. The respective parts of the loading device shall have sufficient strength, and be assembled to apply a load on the loading platform vertically without eccentricity.

c. Each side of the test pit shall be 5 times as long as a side of the loading platform, and the place to set the loading platform shall be finished smoothly, with the horizontality confirmed by a level, etc.

d. When the test depth is lower than the ground-water level, water shall be discharged, care being taken not to make the water level lower than the test face.

e. Two or more steel or wooden reference bars for measurement of sink amount shall be provided in symmetrical positions against the center of the loading platform.

f. The loading test position shall be instructed by the supervisor especially.

g. The predetermined depth for loading shall be FL - 2,184 mm, and the test shall be conducted at 3 places.

3) Test

a. The maximum loading weight shall be 3 metric ton.

b. For test, at first a load of about 200 kg/m^2 shall be applied, and then the verticality, etc. of the loading device shall be inspected, adjusting the dial gauge to 0.

c. The loading weight of each time shall be 1 metric ton, and only after the sinking velocity becomes 1/100 mm or less, the next load shall be applied.

4) Report

The test result shall be made out in the form specified by the supervisor and submitted to the supervisor.

Chapter 4 Foundation Work

4-1 Brick Foundation

1) Material

Bricks shall be of 1st class.

4-2 Working Method

Sand shall be laid to required thickness on the excavated bottom, and compacted by a rammer, or a hand rammer, etc., and bricks shall be struck on it by a wooden hammer, etc. in one layer, with sand filled in the joints.

Chapter 5 Reinforced Concrete Work

5-1 Reinforcing Steel

1) Deformed bars shall be in conformity with SD35 standard if D16 or more, and shall be equivalent to SD30 standard if D10 or D13. (see JIS)

2) Round steel shall be 9 ø or 13 ø and equivalent to SR24.

5-2 The required strength of concrete shall be as follows.

Foundation, foundation beam:
FC 180 kg/cm^2 (crushed bricks can be used as aggregate)

Column, beam, slab, slab on ground:
FC 210 kg/cm^2 (gravel can be used as aggregate)

Leveling concrete slab:
FC 180 kg/cm^2 (crushed bricks can be used as aggregate)

Machine foundation: FC 180 kg/cm^2 (crushed bricks can be used as aggregate)

(FC: four weeks age strength, see JASS5)

5-3 Mold

For sheathing board, plywood (with thickness of 12 mm or more) shall be used, or local material shall be used subject to approval by the supervisor.

Chapter 6 Structural Steel Work

6-1 Material

1) Steel

Steel shall be in conformity with SS41 standard, and the places for use, sizes and forms shall be as illustrated in the drawings. (see JIS)

2) Bolts

High tension bolts shall be in conformity with F10T (TC bolts or equivalent). (see JIS)

Anchor bolts shall be in conformity with SS41 standard.

3) Folded Steel Plate

The folded steel plate shall be in conformity with S-60 (product of Sanko Metal Industrial Co., Ltd. or equivalent).

4) Preparation of Surfaces for Painting

The surfaces shall be prepared sufficiently to suit the anti-corrosive painting as good as galvanizing.

Chapter 7 Brick Work

7-1 Material

Kind of bricks shall be as follows.

1) External walls and face sides: Machine-made 1st class

2) Partition brick finder finishing, mortar, painting, etc. Main-made 2nd class

3) Ornamental brick: Machine-made 1st class

7-2 Working Method

1) The quantities for brick laying shall be as illustrated in the drawings.

2) The joint plan shall be as illustrated in the drawings and careful joint finishing shall be made in the portions of exposed brick finishing.

Chapter 8 Water-Proofing Work

8-1 Lime Terracing

Lime terracing (7:2:2) = (crushed bricks : lime : brick surky) shall be slowly finished to the illustrated thickness on concrete slab according to the local customs, being followed by finishing into 12 mm thick lime mortar (1:2).

8-2 Mortar Water-Proofing

The waterproof agent shall be any product of the following manufacturers or equivalent or better, and samples, reference data, and execution specifications shall be submitted to the supervisor for approval and selection. The work shall be performed under the responsibility of the manufacturer concerned.

(Commodity)	(Manufacturer)
Lotus	K.K. Kaijo Kagaku Kogyosho
Gelka	Yoshida Kensetsu Kogyo K.K.
Mangner	Magna Kogyo K.K.

Chapter 9 Stone Work

9-1 Terrazzo Block

Floors of respective rooms:
Terrazzo block (containing marble powder) subject to approval by the supervisor by sample

Floors of corridors: Same as above

Water-closet separate screen:
Terrazzo block subject to approval by the supervisor by sample

Chapter 10 Tile Work

10-1 Materials

The matrerials shall be porcelain Grade 1, and any products of the following manufacturers or equivalent or better, and those approved by the supervisor by samples shall be used.

Ina Seito Co., Ltd., Arita Tile K.K., Tanto K.K., Iwao Jiki Kogyo K.K.

Quality, sizes and forms shall be according to the following table.

Place for Use	Quality	Size & Form	Color	Joint	Note
Toilet (1-202) floor	Porcelain	Polycon mozaic	Standard color	White cement	Selected by sample
Toilet (1-202) wall	Semi-porcelain	100 mm square	Matt on specified face	- " -	- " -
Dark room (2-111) wall	Porcelain	100 mm square	Specified color	- " -	- " -
Shower room (2-214) wall	Semi-porcelain	100 mm square	Standard color	- " -	- " -

Chapter 11 Wood Work

11-1 Material (see 12.1.2 (a) in the Common Specification)

1) As for the plywood, the kind of tree, class and grade shall be according to the drawings and the schedule of finish.

11-2 Kinds of Wooden Materials by Use

Kind of materials by fixture shall be as shown in the following table.

Name of Fixture	Kind of Material	Grade
Window and doorway frames, almery, frame, shelf, architrave trim, corner bead, base board	Local good quality material, Chittagon teak, Burma teak	No knot for Chittagon teak and Burma teak, and small knot grade for the other
Normal plywood	Lath	Class 2 waterproof plywood grade 1

11-3 Inspection

All wooden materials shall be subjected to inspection and only those accepted shall be used.

Chapter 12 Roofing and Gutter

12-1 Long Folded Steel Plate Roof Board

1) Material

The folded steel plate shall be S-60 (product of Sanko Metal Industrial Co., Ltd.) or equivalent, and shall be approved by the supervisor.

2) Sample and Full Size Drawing

The sample and full size drawing shall be submitted as soon as possible for approval by the supervisor.

12-2 Corrugated Asbestos Cement Board

1) Since the corrugated asbestos cement board is used not for waterproof roofs but for sunshades in this construction, the work shall be performed as illustrated and according to the instructions of the supervisor, without misunderstanding the purpose.

2) Material

For the corrugated asbestos cement board, short pitch corrugated board shall be used, and shall be any product of the following manufacturers or equivalent.

Asono Sureto K.K., K.K. Nozawa

Chapter 13 Metal Works

13-1 Materials

The iron, non-ferrous metals and their secondary products used for this construction shall be approved by the supervisor as to both the material and products.

13-2 Sample and Full Size Drawing

As for manufactured metallic products, samples shall be submitted for approval by the supervisor as to the size, form, color, finish, etc. All the other metallic products than those already manufactured, full size drawings shall be made for approval by the supervisor. If necessary, site samples or models shall be submitted.

Chapter 15 Doors, Window, Shutter and Joiner's Work

15-1 Aluminium Frame

1) Type and Size

The types and sizes shall be according to the drawings and instruction of the supervisor. All the external arrangements shall be made out as airtight.

2) Working Method

Before manufacturing, working drawings and detail drawings to show mounting, and full size drawings shall be made and approved by the supervisor.

3) Mounting

Mounting shall be made later under the responsibility of the manufacturer.

4) Manufacturer

The fittings shall be any products of Fujisash Industries, Ltd., or Showa Koki K.K. or equivalent or better, and shall be approved by the supervisor.

15-2 Steel Frame

1) The type and size, working method, mounting and manufacturer shall be according to those of the previous Pragraph, aluminium frame.

15-3 Stainless Steel Frame

1) The type and size, working method, and mounting shall be according to those of the previous Paragraph.

2) Manufacturer

The frame shall be any products of Tajima Metal Work K.K. or equivalent or better, and shall be approved by the supervisor.

15-4 Wooden Door

1) The type and size, working method, and mounting shall be according to those of the previous Paragraph.

2) Manufacturer

The door shall be approved by the supervisor.

15-5 Light-Weight Shutter

1) The type and size, working method, and mounting shall be according to the previous Paragraph.

2) Manufacturer

The shutters shall be any products of Sanwa Shutter Mfg. Co., Ltd., Komata Shutter Kogyo K.K. or Suzuki Shutter K.K. or equivalent or better, and shall be approved by the supervisor.

Chapter 16 Painting

16-1 Material

The painting material shall be any product of the following manufacturer or equivalent or better and shall be approved by the supervisor.

Kansai Paint K.K., Nihon Paint K.K.
Jinto Toryo K.K., Dainihon Toryo K.K.

The material of ready-mixed paint shall be also same as above.

16-2 Sample of Painting Material, etc.

The painting sample shall be made out in the site by the carried-in material, and the respective item of color, consistency, gloss and etc. shall be approved by the supervisor.

16-3 Kind of Finish

Kind of finish shall be according to the drawings, the schedule of finish and the instruction of the supervisor.

16-4 Distemper

1) Shalimar's dry distemper (or equivalent of other approved manufacture) shall be used.

2) The distemper shall be stirred slowly in clean water in (distemper : water = 1 : 0.6 weight or as specified by the makers).

3) The surface to be distempered shall be cleaned. All cracks, holes and surface defects shall be repaired to present a fine smooth surface. All irregularities and inequalities shall be sand-papered smooth and wiped clean.

4) The surface as prepared above must be completely dry before distempering is commenced.

5) The mixture shall be applied with a brush in long parallel strokes. Care shall be taken to ensure that application is even and brush marks are not left visible.

6) The treated surface shall be allowed to dry and harden.

7) Second coat shall be applied in exactly the same manner as the first one and shall be allowed to dry and harden.

8) If the surface does not show an even and uniform finish, a third coat shall be applied in the same manner.

Chapter 17 Interior Work

17-1 General Terms

1) Material

Samples as to color, patterns, etc. shall be submitted beforehand for approval by the supervisor.

17-2 Needle Punch Carpet

1) Material

The needle punch carpet shall be any product of the following manufacturers or equivalent, and samples of hues shall be submitted beforehand for approval by the supervisor.

Toyo Linoleum Mfg. Co., Ltd., Suminoe Orimono K.K.

Chapter 18 Miscellaneous Works

18-1 Experiment Table, etc.

The types and sizes shall be according to the given schedule of Furniture & Equipment or equivalent or better and according to the instructions of the supervisor, and the tables, etc. shall be any products of the following manufacturers or equivalent.

K.K. San-ei Seisakusho, K.K. Kyoritsu Seisakusho

18-2 Draft Chamber

The above specification shall apply.

18-3 Clean Bench

The above specification shall apply.

18-4 Furniture and Utensils

The types and sizes shall be according to the given Schedule of Furniture & Equipment and according to the instructions of the supervisor, and the products shall be those of the following manufacturers or equivalent.

K.K. Itohki, Okamura Mfg. Co., Ltd.

Schedule of Furniture & Equipment

Room Number	Room	Item	Type	Size	Nos./Room	Total Nos.
		Main Building (1)				
1-102	First-aid room	Steel desk	Itoki AN-2070	700^{H} x 1000^{W} x 700^{D}	1	1
		" chair	" KS-211	(390-480)x400x370	1	1
		" "	" KS-235	(420-510)x300^{ϕ}	1	1
		" shelf	Dalton CSB	1850x880x400	1	1
1-103	Meeting room	" table	Itoki TB-6251-11	700x1800x750	6	6
		" chair	" KA-325-80	480x370x370	12	12
1-104	Dy.Director office	" desk	" CN1470-82	700x1400x700	2	2
		" chair	" KM-635-80	(380-460)x430x415	2	2
		" locker	" H-330	880x880x380	2	2
1-108	Asst.clerk office	" desk	" AN-2070	750x1060x730	7	7
		" chair	" KS-211	(390-480)x400x370	7	7
1-109	Office room	" desk	" ANM-2270	700x1200x700	6	6
		" chair	" KS-111	(390-480)x400x370	6	6
		" locker	" H-330	880x880x380	6	6
1-201	Asst.director office	" desk	" CN-1680-10	700x1600x800	1	2
1-204	Derector office	" chair	" KH-704CBL	(405-465)x500x480	1	2
		" locker	" H-330	880x880x380	1	2
1-203	Secretariat room	" table	" TB-6251-11	(700-720)x1800x750	2	2
1-205	Guest room	" table	" LET-655-13	430x1200x600	1	1
		" sofa	" LEM-312	380x1880x735	1	1
		" chair	" LEM-311	380x780x735	4	4
1-208	Book store	" book shelf	" EC625-5S	(1880x950x308)x5	2	2
			" EC625-4S	(")x4	1	1
			" EC625-3D	(")x3	2	2

Room Number	Room	Item	Type	Size	Nos./Room	Total Nos.
1-209	Reading room	Steel desk	Itoki AN-2070	700x1000x700	2	2
		" table	" TB6251-11	(700-720)x1800x750	6	6
		" chair	" KS-211	(390-480)x400x370	2	2
		" "	" KA-325-80	420x370x370	24	24
1-212	Pri. information officer office	" desk	" CN-1470-82	700x1400x700	1	1
		" chair	" KM-635-80	(380-430)x430x415	1	1
		" locker	" H-330	880x880x380	1	1
1-213	Information office	" desk	" ANM-2270	700x1200x700	3	3
		" "	" AN-2070	700x1000x700	3	3
		" chair	" KS-111	(390-480)x400x370	3	3
		" "	" KS-211	(390-480)x400x370	3	3
		" locker	" H-330	880x880x380	3	3
Main Building (2)						
2-101	Experiemnt class room	Steel table	Itoki TB-6251-11	(700-720)x1800x750	2	2
		" chair	" KA-325-80	420x370x370	11	11
		" green board	" BKG-180	900x1800	1	1
2-102	Horticulture Lab.	Exp.center table	Dalton GS-II-3000	850x3000x1500	1	5
2-106	Agronomy Lab.	Exp.wall table	" UT-D-1200	850x1200x750	1	5
2-201	Assay room	Exp.sink unit	" AF-600	850x600x750	1	5
2-202	S. & F. Lab.	Balance table	" SY-3-900	850x900x750	1	5
2-207	P.P. Lab.					
2-202	S.& F. Lab.	Draft chamber	" DE-3-1200	2760x1200x750	1	1
2-207	P.P. Lab.	Clean bench	" PCV-841-AN	1710x840x1050	1	1
2-103	Hort.specialist office	Steel desk	Itoki CN-1470-82	700x1400x700	3	12

Room Number	Room	Item	Type	Size	Nos./Room	Total Nos.
(continued)						
2-114	Farm management S.O.	Steel chair	Itoki KM-635-80	(380-460)x430x415	3	12
2-203	S.& F. S.O.	" locker	" H-330	880x880x380	3	12
2-208	P.P. S.O.					
2-104	Extension S.O.	" desk	" CN-1470-82	700x1400x700	4	8
2-107	Agronomist office	" chair	" KM-635-80	(380-460)x430x415	4	8
		" locker	" H-330	880x880x380	4	8
2-108	Pri.Agron. office	" desk	" CN-1470-82	700x1400x700	1	1
		" chair	" KM-635-80	(380-460)x430x415	1	1
		" locker	" H-330	880x880x380	1	1
2-111	Dark room	Developing table	Dalton DR-A	850x1800x750	1	1
		Wall table	" UT-A-1200	850x1200x750	1	1
2-113	Equipment store	Steel shelf	Itoki R-164S 40	1800x1200x300	5	10
2-204	Chemical store					
2-209	Meeting room	" table	Itoki TB6251-11	(700-720)x1800x750	2	4
2-216	"	" chair	" KA-325-80	420x370x370	8	16
2-215	Advisor room	" desk	" CN-1470-82	700x1400x700	1	1
		" chair	" KM-635-80	(380-460)x430x415	1	1
		" locker	" H-330	880x880x380	1	1
		" table	" LET-65S-13	450x1200x600	1	1
		" sofa	" LEM-312	380x1880x735	1	1
		" chair	" LEM-311	380x780x735	4	4

Room Number	Room	Item	Type	Size	Nos./Room	Total Nos.
			Audio-Visual & Class Room			
3-103	Class room (1)	Steel table	Itoki AN3060	700x1000x600	1	2
3-104	" (2)	" "	" TB5150-11	(700-720)x1500x450	12	24
		" chair	" KA-325-80	420x370x370	37	74
		" green board	" BG120	900x1200	1	2
3-105	Work shop	Wood work table	" WL50W	740x170x700	2	2
			Assembly Hall			
4-103	Assembly hall	Steel table	Itoki TB5150-11	(700-720)x1500x450	41	41
		" chair	" KA-325-80	420x370x370	121	121
		" green board	" BG120	900x1200	2	2
			Dining Room			
5-102	Dining room	Steel table	Itoki TK-4251-21	700x1200x750	24	24
		" chair	" KA-325-80	420x370x370	96	96
			Hostel (1)			
7-101	Bed room	Steel table	Itoki AN-3060	700x1000x600	4	32
⟨	(for four P.)	" chair	" KA-325-80	420x370x370	4	32
7-104		" locker	" 2L7J	1790x608x515	2	16
7-201		" pipe bed (straw mat)	(order)	2000x1000	4	32
⟨ 7-204						

Room Number	Room	Item	Type	Size	Nos./Room	Total Nos.
		Hostel (2)				
8-101 ⟆ 8-108	Bed room (for two P.)	Steel desk	Itoki AN-3060	700x1000x600	2	16
		" chair	" KA-325-80	420x370x370	2	16
		" locker	" 2L7J	1790x608x515	1	8
		" pipe bed (straw mat)	(order)	2000x1000	2	16
		Hostel (3)				
9-101 ⟆ 9-108	Bed room (for one P.)	Steel desk	Itoki AN-3060	700x1000x600	1	8
		" chair	" KA-325-80	420x370x370	1	8
		" locker	" 1L7J	1790x455x515	1	8
		" pipe bed (straw mat)	(order)	2000x1000	1	8
		Common Room				
10-104	Common room	Steel table	Itoki LR-220	675x750ø	6	6
		" chair	" KR-415-80	420x390x380	24	24
		Machine Store				
11-101	Machine store	Chain block	Kito EM025	2.5tx2.5m	1	1

Room Number	Room	Item	Type	Size	Nos./Room	Total Nos.
Machinery Workshop & Machine Store						
12-104	Office room	Steel desk	Itoki ANM-2270	700x1200x700	2	2
		" chair	" KS-111	(390-480)x400x370	2	2
		" locker	" H-330	880x880x380	2	2
12-105	Drawing room	" desk	" CN-1470-82	700x1400x700	2	2
		" chair	" KM-635-80	(380-460)x430x415	2	2
		" locker	" H-330	880x880x380	2	2
12-107	Class room	Wood work table	" WL-50WR	740x1700x700	4	4
		Steel green board	" BKG-120	900x1200	1	1
12-108	Workshop	Wood work table	" WH-70	740x2005x760	2	2
		Auto-lift	Banzai MK-30	3068x5.250	1	1
		Chain block	Kito MIGHTY M2 (N2GL 350	1.5tx4.0m 125x125x10000	1	1
12-109	Consumptive goods S.	Steel locker	Itoki H-360JIS1	1790x880x380	2	4
12-110	Parts S.					
12-111	Machine-tool workshop	Wood work table	" WL-50WR	740x1700x700	3	3
Field Management Building						
13-109	Seed store	Steel shelf	Itoki R163M-50	1800x900x450	5	10
13-110	"					

Chapter 19 Exterior Work

19-1 Water Supply Tank

The type, size and the materials shall be as illustrated, and the name of the manufacturer and full size drawings shall be approved by the supervisor.

Chapter 20 Electric Equipment Installation

20-1 General

1) Scope

This specification shall be applied to the electric equipment installation for the construction of "Central Extension Resources Development Institute" in Bangladesh.

2) Working Standard

The installation shall be effected according to this specification, design drawings and instructions of the supervisor, and also to the sections relating to this installation in the "Common Specification for Electric Equipment Installation" (laid down by Government Buildings Department, Minister's Secretariat, Ministry of Construction of Japan).

3) Doubts

If there are any doubts in the drawings and specification, they shall be settled in construction with the supervisor.

4) Formalities with Government and Other Public Offices

Any formalities with the government and other public offices necessary for this construction shall be taken by the contractor without delay.

5) Slight Alterations

Slight alterations installation methods and positions of machinery and apparatus, and materials in view of the settlement, fitting, etc. on the site shall be made according to the instructions of the supervisor.

6) Selection of A Superintendent

The superintendent of the contractor engaged in this installation shall be a Japanese electrician who has sufficient installation experience and is excellent in personality and technique.

7) Determination of Subcontractors and Slection of Designated Manufacturers

As for subcontractors, a list of the names shall be submitted to and approved by the supervisor before determination. The machinery and apparatus, and materials used shall be in principle those produced by the designated Japanese manufacturers, and shall be new products. A list of the manufacturers of the machinery and apparatus, and materials shall be submitted to and approved by the supervisor.

8) Process Table and Proceeding Report

The contractor shall submit a process table containing the working schedule necessary for the installation beforehand to the supervisor, for approval. Documents concerning the proceeding of installation and other necessary matters shall be submitted according to the instructions of the supervisor.

9) Working Drawing and Manufacturing Drawing

The drawings necessary for working and manufacturing shall be made without delay before working and manufacturing, and submitted to the supervisor for approval.

10) Machinery and Apparatus, and Materials

Of the machinery and apparatus, and materials, those which the supervisor recognizes necessary shall be inspected or tested on the site or manufacturer's factory concerned, in the presence of the supervisor, and only those accepted shall be used. The list of test results shall be submitted without fail. As for standard, the "Japanese Industrial Standards" shall be applied.

11) Inspection and Test

a. The installation items on which any inspection cannot be made or is difficult after completion shall be inspected or observed by the supervisor in the process of working in principle.

b. The inspections during installation or after complete installation, in the presence of the government and other public officials, shall be conducted under the responsibility of the contractor before the completion inspection.

c. Before delivery of the facilities, the test, adjustment and trial run of the respective machinery and apparatus shall be executed, and the records shall be submitted to the supervisor.

d. After completion of installation, an inspection shall be conducted in the presence of the supervisor.

12) Completion Drawings and Maintenance Handbooks

When the installation is completed, completion drawings and machinery and apparatus instruction manuals or handbooks for maintenance shall be submitted to the supervisor.

20-2 Construction Specification

1) General

This construction shall be carried out in sufficient co-operation with the other parts of this construction, in accordance with the specified construction period and with care of construction site, for establishment of the safe and convenient institute.

2) Construction Item

a. 11 kv lead-in cable
b. Sub-station equipment
c. Stand-by generator
d. Main line
e. Cabinet panel and control board
f. Instrument
g. Secondary wiring and piping
h. Instrument (interphone and audio set)
i. Piping for telephone
j. Lightning conductor

3) Construction Outline

a. 11 kv lead-in cable

Supply and laying 11 kv lead-in cable from 11 kv transmission line (over head line) via section swith panel to incoming high voltage panel (see drawing).
However, connection to transmission line is separate work. Over head line is on the national road side.

b. Sub-station equipment

Supply and installation in-door type incoming transformer equipment (see drawing CF.C-1).

c. Stand-by generator

Supply and installation cubicle type generator (see drawing CF.C-2).
However, water supply and drain are not included.

d. Main line

Supply and laying main line from low voltage distribution panel provided in sub-station, and to cabinet panel or control board fixed in each buildings.

e. Cabinet panel and control board

Supply and fixing cabinet panel and control board (see drawing).

f. Instrument

Supply and fixing lighting fixture, air-conditioner, ceiling fan, dehumidifier, and exhaust fan (see drawing CF.C-3.4.5.8).

g. Secondary wiring and piping

Wiring and piping from fixture to cabinet panel or control board.

Supply and fixing tumbler swith, convenience outlet, and switch, etc.

h. Instrument (interphone and audio set)
Supply and fixing intercommunication type interphone.
Supply portable type lecture audio set (see drawing CF.C-6·7).

i. Piping for telephone
Piping from terminal board to telephone outlet box.
Supply and fixing terminal board.

j. Lightning conductor
See drawing E-28 (lightning system and standard specification).

4) Manufacturer for Electrical Machinery & Apparatus and Material

Electrical machinery & apparatus and material shall be principally made in the following manufacturer of Japan or more than equals.

Sub-station equipment: Hitachi, Mitsubishi, Toshiba

Generator: Hitachi, Mitsubishi, Toshiba

Cabinet panel and control board:
Hitachi, Mitsubishi, Toshiba, Matsushita

Lighting fixture & ceiling fan and exhaust fan:
Hitachi, Mitsubishi, Toshiba Matsushita

Air-conditioner and dehumidifier:
Hitachi, Mitsubishi, Toshiba Matsushita

Interphone and audio set:
Hitachi, Mitsubishi, Toshiba
Matsushita

Convenience outlet & tumbler switch and switch, etc.:
Hitachi, Mitsubishi, Toshiba,
Matsushita, Jimbo

Conduit tube and fittings:
Toshiba, Matsushita

Wire and cable: Hitachi, Furukawa, Fujikura,
Sumitomo

5) Spare Machinery & Apparatus and Material

The followings shall be provided.

Flourescent light	FL40w x 2	:	(Nos.)	10
"	FL40w x 1	:	"	10
Incandescent light	IL60w	:	"	10
Fluorescent lamp	FL40w	:	"	170
Incandescent lamp	IL60w	:	"	50
Sterilize lamp	15w	:	"	2
Marcury arc lamp	100w	:	"	4
Air-conditioner	4000 kcal	:	"	2
Ceiling fan	1400 mm	:	"	5
Interphone		:	"	2
Convenience outlet (duplex 2P 15A 250V grounding type with attachment plug)		:	"	20
Tumbler switch	1P 10A 300V	:	"	20
Box type switch	440V 3P-15A	:	"	5
Molded case circuit breaker				
440V	1P-30AF	:	"	10
"	1P-50AF	:	"	10
"	3P-50AF	:	"	10

Portable type transformer 1ø 230/100V 500VA	:	(Nos.)	5
600V Grade cabtype, cable $3.5mm^2$- 4C	:	"	200 m
600V Grade polyvinyl chloride insulated and sheathed cable: $1.6mm^2$- 3C		"	200 m

20-3 Electrical Machinery and Apparatus Specification

1) Substation Equipment

Cubicle type equipment shall be covered with steel sheet, installing necessary devices such as a circuit breaker, relays, meters, and lines to terminals. Spare parts shall also be provided.

a. High voltage (11 kv) incoming panel and MOF panel

i. Quality : one set

ii. Type : sheet steel, self standing in-door use

iii. Comprising:

1 - 3 pole disconnecting switch 13.8 kv 600A. Manual operation with interlock magnet and auxiliary contacts

1 - Magnetic blow-out circuit breaker 12 kv 600A breaking capacity 250 MVA

2 - Single phase current transformers 30/5A 40VA

2 - Over current relays with instant trip

1	-	Over current ground relay
1	-	Over voltage relay
1	-	Under voltage relay
1	-	A.C. ammeter with change over switch
1	-	A.C. voltmeter with change over switch
1	-	A.C. tree phase power-factor meter
1	-	A.C. watt meter
1	-	A.C. watt hour meter
1	-	Frequency
1 set	-	Control switch and signal lamp
2	-	Single phase potential transformers 11000/110 200VA
1	-	Single phase operation transformer 11000/110 10KVA
1 set	-	AC/DC device for breaker closing
1 set	-	Capacitance device for breaker tripping
3	-	Dry valve lighting arresters
1 set	-	Metering out fit (MOF) with maximum, demand meter, watt hour meter

b. Bus Duct

For transformer primary and secondary, in-door use.

c. *Transformer*

i. Quantity : one

ii. Type : oil immersed, self cooled

iii. Rated primary voltage:
$F_{12} - F_{11.5} - R_{11} - 10.5$ kv

iv. Rated secondary voltage:
400V - 230V 3ø - 4w

v. Rated output: 400 KVA

vi. Rated frequency: 50HZ

vii. Connection: Primary - delta
Secondary - star with external neutral

viii. Standard accessaries:
one set

d. Low Voltage (400V -230V) Distribution Panel (for transformer secondary)

i. Quantity : one

ii. Type : sheet steel, self standing, in-door use

iii. Comprising:

1 set - 400V molded case circuit breaker

1 set - 400V earth leakage circuit breaker

2 - Single phase potential transformer 400/110V

2 - Single phase current transformer

1 - A.C. ammeter with change over switch

1 - A.C. voltmeter with change over switch

e. Emergency Distributuion Panel
(for change over circuit)

i. Quantity : one

ii. Type : sheet steel, self standing, in-door use

iii. Comprising:

1 set - 400V molded case circuit breaker
1 - 400V double throw magnetic switch
1 set - 400V earth leakage circuit breaker

f. 11KV lead-in Section Switch Panel

i. Quantity : one

ii. Type : sheet steel, self standing, out-door use

iii. Comprising:

1 - 3 poles disconnecting switch, manual operation
13.8 KV 600A

2) Stand-By Generator

Diesel engine generator shall be 60KVA cubicle type, in -door use, and consist of a three-phase A.C. Generator. A diesel engine shall be coupled directly with each other on a common frame, and include control panel, a starting battery, a fuel tank, and necessary other parts. Spare parts shall also be provided.

a. Quantity : one set

b. Comprising:

1 - 3 phase A.C. generator
60KVA, 400V - 230V, 50HZ, 1500RPM,
4 poles, power-factor 0.8

1 - Control panel
self-excited unit type

1 - Automatic starting panel

1 - 75.5PS diesel engine
vertical type, water-cool type,
4 cycles, 6 cylinders, 1500RPM
fuel oil: light oil for high-speed diesel engine

1 - Starting motor

1 - Charging generator

1 set - Battery D.C. 12V 120AH x 2

1 - Fuel tank 90 lit.

3) Air-Conditioner

Window type room air-conditioner shall be of cooling capacity 4000 Kcal/H with necessary devices such as a fan controler, adjustable thermostat, including mounting set.

4) Ceiling Fan

1400 mm (56") sweep ceiling fan shall consist of blade, 5-step speed regulator, canopy, down rod (lit.= 600).

5) Dehumidifier

Floor mounting type room dehumidifier shall be of capacity 420 cc/H with down transformer (voltage ration 230/100V), and a kind shall be RD-2005 of Hitachi or approved equals.

6) Lecture Audio Set

Portable type lecture audio set shall install wire-less microphone, and a kind shall be WX-610 of Matsushita or approved equals.

7) Interphone

Interphone shall be intercommunication type 24 exchange, wall mounted type, VL-209 of Matsushita or approved equals.

8) Light Fixture

a. Ceiling fixture type of fluorescent light fitting shall comprise tube, choke, holde, starter and necessary other parts.

Type : 40 watt lamp x 1
40 watt lamp x 2

b. Ceiling and wall fixture type of incandescent light fitting shall be 60 watt white ball lamp.

Chapter 21 Sanitary Plumbing and Thermo-Humidistatic Equipment Installation

21-1 General

1) Scope

This specification shall be applied to the sanitary plumbing and thermo-humidistatic equipment installation for the construction of "Central Extension Resources Development Institute" in Bangladesh.

2) Working Standard

The installation shall be effected according to this specification, design drawings and instructions of the supervisor, and also the sections relating to this installation in the "*Common Specification for Mechanical* Equipment Installation" (laid down by Government Buildings Department, Minister's Secretariat, Ministry of Construction of Japan).

3) Doubts and Slight Alterations

If there are any differences in the contents of the drawings and specification, or if there are any doubts, the installation shall be made according to the instructions of the supervisor. For the slight alterations for the above mentioned cases or for the cases of settlement, fitting etc. on the site, the contract amount shall not be adjusted.

4) Notification, Formalities and Consultation with the Government and Other Public Offices

The notification, formalities and consultation with the government and other public offices shall be processed promptly, not to disturb the installation, under the responsibility of the contractor.

5) Selection of A Superintendent

A Japanese technician with sufficient experience shall be selected as a field clerk of sanitary plumbing equipment installation and shall be engaged as the superintendent from the time of necessity.

6) Process Table, Proceeding Report, etc.

The contractor shall submit a process table containing the working schedule necessary for the installation beforehand to the supervisor, for approval. Documents concerning the proceeding of installation and other necessary matters shall be submitted according to the instructions of the supervisor.

7) Selection of Designated Manufacturers

The machinery and apparatus, and materials shall be selected in the following list (21-2-3) of the designated manufacturers. A list of the manufacturers of the machinery and apparatus, and materials shall be submitted to and approved by the supervisor.

8) Working Drawing and Manufacturing Drawing

The drawings necessary for working and manufacturing shall be made without delay before working and manufacturing, and submitted to the supervisor for approval.

9) Inspection and Test

a. Of the machinery and apparatus, and materials, those which the supervisor recognizes necessary shall be inspected or tested on the site or manufacturer's factory concerned, in the presence of the supervisor, and only those approved shall be used.

b. The installation items on which any inspection cannot be made or is difficult after completion shall be inspected and confirmed by the supervisor in the process of working in principle.

c. The inspections by the government and other public offices during installation or after complete installation shall be conducted under the responsibility of the contractor, before the completion inspection, and the inspection certificates, etc. shall be submitted to the supervisor.

d. After complete installation, the test, adjustment and trial run of the respective machinery and apparatus, and equipment shall be executed, and the records shall be submitted to the supervisor.

e. The completion inspection shall be conducted finally in the presence of the supervisor.

10) Completion Drawings, Completion Photos and Maintenance Handbooks

When the installation is completed, 3 copies each of completion drawings, completion photos and maintenance handbooks shall be submitted to the supervisor.

21-2 Installation Specification

1) Installation Items (Quotation should be made also in the following classification)

a. Water supply equipment:
well drilling, pump and water supply pipe

b. Drainage equipment:
soil pipe, miscellaneous drain pipe, catch-basin, septic tank and vent pipe

c. Gas equipment: gas pipe

d. Sanitary equipment:
sanitary earthenware, accessory fittings, drain fittings, and cocks

e. Kitchen equipment:
sink, range, etc.

f. Thermo-humidistatic equipment:
thermo-humidistatic device, ducts, and air outlet

2) Installation Specification

a. Water Supply Equipment

Pipe material: PVC-lining steel pipe

Valves: For 3" or more, main valve made of cast iron with principal parts made of bronze, flanged.
For 2" or less, made of bronze, screwed.
Proof-pressure of both shall be 20 kg/cm^2.

Piping:
- Prior to concealed work, back filling and antisweat covering, the hydraulic test by water pressure of 10 kg/cm^2 shall be conducted for 1 hour, and there shall be no pressure drop.
- Around concealed pipes, asphalt jute shall be wound.
- As for interior pipes, only the exposed portions shall be covered with glass wool heat retaining tubes (20 mm thick), further with vinyl tape wound on them.
- The transverse pipes under the ground floor ceiling shall be supported at intervals of 1 m or less.
- The rise pipes of exposed portions shall be supported at the intervals of 2 m or less.

b. Drainage Equipment

Pipe material:

Interior soil pipe:
hard PVC pipe (general pipe of JIS-K6741)

Interior miscellaneous drain pipe:
- ditto - (- ditto -)

Interior vent pipe: - ditto -
(thin wall pipe)

Exterior drain pipe:

pitch fiber pipe (z pipe)

Piping:
- For interior piping, a grade of 1/50 shall be taken for dia 3" or less; 1/100 for dia 4" or more; and for exterior piping, 1/150.
- Only the exposed portions of interior pipes shall be covered with glass wool heat retaining tubes (20 mm thick), further with vinyl tape wound around them..
- The transverse pipes under the ground floor ceiling shall be supported at intervals of 1 m or less.
- The rise pipes of exposed portions shall be supported at the intervals of 2 m or less.

Catch-basin:
- The soil catch-basin shall be provided with an invert and then finished smoothly by mortar.
- The miscellaneous catch-basin shall be provided with a sand pit of 6" or more.
- All the catch-basins shall be made of bricks (10" x 5" x 3"), and the covers shall be made of precast concrete (steel reinforced).

c. Gas Supply

Pipe material: White gas pipe (white pipe of JIS-G3452)

Piping: All the piping shall be provided with proper grade (about 1/100), and drain plugs shall be provided at the lowest portions and ends.

Covering: Vinyl tape shall be wound around all the exposed portions in the interior.

d. Sanitary Ware

The pottery shall be normal white pottery, passing JIS standard, and shall be of Ordinary Grade. All the accessory fittings shall be finished with chrome plating. The washbasin shall be fitted at the height of 28" from the floor to the upper front edge.

e. Kitchen Equipment

The decks and tanks of sinks, tables, etc. shall be made of stainless steel sheet (SUS430, 1.2 mm thick), and the stands shall be of stainless steel pipes (with adjusting balls at the tips).

After installation, the apparatus shall be cured thoroughly.

f. Thermo-Humidistatic Equipment

In addition to the specifications by the drawings, the following specifications shall be applied.

Registrator: Cooling capacity 5,000 kcal/hr (evaporation temperature 0°C), air cooling system

Control board: The control board shall be provided for automatic control of heaters, fans, pumps, etc. by the signals from the automatic control devices (thermostat, humidistat, floatless switch, refrigerant solenoid valve) contained in the main equipment (including electric wires in the main equipment).

Heat retaining and cold retaining:
The heat and cold retaining arrangements upto the duct connecting points in the main equipment shall be prepared in the factory before delivery.

Filter: The filter medium shall be fiber with aluminium frame.

Spares:
i. 2 bearings and 1 pulley for air contactor fan, and 2 belts for the above
ii. 2 bearings and 1 pulley for regenerator fan, and 1 belt for the above
iii. 1 set of main pump and heater (KP-1T-50)
iv. 1 set of economizer pump (elepon, sealless pump S020)
v. 1 can KATEHN solution (containing 120 ltr @ 40% wt)

Inspection and test:
The trial run shall be performed in the manufacturer's factory in the presence of the supervisor, and a list of test results shall be submitted for approval.

Power consumption:
16kw, @400V x 3PH, 50HZ

3) Designation of Manufacturers of Machinery and Apparatus and Materials (the following or those recognized to be equivalent to the following by the supervisor)

Sanitary pottery, cocks and fittings:
Toto, Ltd.

Water-purifier tank:
Nishihara Neo Kogyo Ltd.

Cookroom equipment:
Fuji Chubo Setsubi Co., Ltd.

Thermo-humidistatic equipment:
Chugai Ro Kogyo Ltd.

PVC line steel pipe:
Nippon Steel, Kawasaki Steel

Hard PVC type: Sekisui, Kubota, Ltd.

Pitch fiber pipe:
Fujimori Kogyo Ltd.

4) Spares (Items below b. shall be quoted collectively as one set)

a. Piping materials (including couplings):

20% of required quantities (to be quoted for the respective items concerned)

b. Sanitary pottery:

C-61	4 sets
C-21	6 sets
U-29	3 sets
L-220D	11 sets
SK-7	2 sets
T200Y13	10 pcs
T26B13	5 pcs
TB17R13	6 pcs
TGB9KA13	6 pcs
T31Y13	1 pc
TM13-13	1 pc
T71F51	8 pcs
T72B100	7 pcs
T72B75	4 pcs
T72B50	2 pcs

III. Guide Line for Cost Estimates

1. General

The estimated cost shall be classified into the following 16 items of buildings.

(1) Main building (1)
(2) Main building (2)
(3) Audio-visual & class-room
(4) Assembly hall
(5) Dining room
(6) Sub-station
(7) Hostel (1)
(8) Hostel (2)
(9) Hostel (3)
(10) Common room
(11) Machine store
(12) Machinery workshop & machine store
(13) Field management building
(14) Garage
(15) Corridor
(16) Exterior work

The table of the estimated cost shall be classified into 6 items of architectural work, electric equipment installation, sanitary plumbing and thermo-humidistatic equipment installation, sub-total of above three works, transportation and grand total, in a horizontal line and

shall be classified into 17 items of above-mentioned 16 itmes of buildings and an item of the total in a vertical line.

2. Detailed Items of Respective Building

The tables of further detailedly estimated cost shall be classified into the following further detailed items of respective building.

(1) Architectural Work

i) Temporary work of building construction, ii) Earthwork, iii) Foundation work, iv) Reinforced concrete work, v) Structural steel work, vi) Brick-work, vii) Water-proofing work, viii) Roofing and gutter, ix) Tile work, x) Stone work, xi) Wood work, xii) Metal work, xiii) Finishing, xiv) Door, window, shutter and joiner's work, xv) Glass work, xvi) Painting, xvii) Interior work, xviii) Miscellaneous work, xix) Temporary work in the other concerned work and overhead charge.

However, the cost of (16) exterior work shall be classified into the following items; that is,

i) Pavement, ii) Road, iii) Work area, iv) Drinage pipe, v) Drainage ditch, vi) Drainage trench, vii) Drainage tunnel, viii) Car wash stand, ix) Water supply tower (water storage tank), x) Overhead charge.

(2) Electric Equipment Installation

i) Cabinet panel and central board, ii) Instruments iii) Secondary wiring and piping, iv) Instrument (Interphone and audio-set), v) Piping for telephone,

vi) Lightning conductor, vii) 11 kv lead-in cable (only for (6) sub-station), viii) Sub-station equipment (only for (6) sub-station), ix) Stand-by generator (only for (6) sub-station), x) Law voltage main line (only for (16) exterior work), xi) Temporary work and overhead charge

(3) Sanitary Plumbing and Thermo-Humidistatic Equipment Installation

i) Water supply, ii) Drainage, iii) Sanitary ware, iv) Gas supply, v) Kitchen equipment (only for (5) dining room), vi) Thermo-humidistatic equipment (only for (13) field management building), vii) Temporary work and overhead charge

(4) Transportation

The transportation cost from the Yokohama port to the site shall be summed up on the respective building.

3. Contents of Respective Work

(1) Architectural Work

i) Temporary work of building construction

- Leveling, batter board, marking
- Full size templet
- Scaffold in interior and exterior
- Curing
- Rearranging, sweeping in the site
- Transportation of the above temporary works and concerned

ii) Earth work

- Excavation
- Back filling
- Removal of surplus soil within the site
- Sheathing
- Gravel foundation, sand foundation, brick soiling under foundation and concrete slab, etc. polyethylene film, etc.
- Driving machine, power

iii), iv) Foundation work, Reinforced concrete work

- Concrete shall be classified according to the items of kinds of strength, and reinforcement shall be classified into the items of deformed bar and round bar.
- Cost of mold shall be included in this item of reinforced concrete work.

v) Structural steel work

- Steel shall be classified according to the items of kinds of steel, and rust proof painting shall be included in this item of structural steel work

vi) Brickwork

- Brickwork shall be classified according to the items of kinds of brick, and joint mortar, scaffold, curing and concerned work shall be included in this item of brickwork.
- In principal, the cost of brickwork shall be shown as a composite cost of materials and works by a cubic metre.

vii) Water-proofing work

- Water-proofing work shall be classified into interior & exterior and according to kinds of materials and places.
- Mortar water-proofing shall be included in this item of water-proofing work.

viii) Roofing and gutter

- Asbesto board, metal fittings, concrete block, folded steel plate (with sprayed heat insulation), etc. shall be classified according to kinds of roof.
- The cost shall be shown as a composite cost.

ix) Tile work

- Tile work shall be classified into interior work and exterior in the respective place.

- The cost of mortar for tile joints shall be included in this item of tile work. However, the cost of mortar under tiles shall be included in the item of xiii) finishing.

x) Stone work

- Stone work shall be classified into interior work and exterior in the respective place.
- The cost of terazzo block, artificial stone block shall be shown as a composite cost of materials and work.
- The costs of terrazzo cast in the site and artificial stone cast in the site shall be included in the item of xiii) finishing.

xi) Wood work

- The cost of wood work shall be shown as a composite cost of materials and work by a cubic metre in the respective kind and in the respective structure.
- The cost of finishing carpentry (base board, casing, corner bead,etc.) shall be shown by a cubic metre in the respective kind.
- Wood work included in the item of xviii) Miscellaneous work shall be included in the item of xviii) Miscellaneous work.
- Wood frame of window, door, etc. shall be included in the item of xiv) Door, window, shutter and joiner's work.
- Plywood of interior finish shall be included in the item of xvii) interior work.

- In the case that a composite cost of materials and work by a unit such as a cubic metre, etc. cannot be shown, the cost of materials shall be shown according to grades by a cubic metre or a metre in the respective place and the cost of labour shall be shown by the number of carpenters and helpers in the respective place. The cost of necessary metal fittings such as nail, etc. shall be included in the composite cost of the item of the concerned wood work, or shall be presented as a post-script of the concerned item.

xii) Metal work

- The item of metal work shall include the followings.

  Roof drain, Down pipe, Metal throating plate and etc., Drainage-ditch cover, Grid cover, Man-hole cover, Pipe and etc., Curtain rail, Steel ladder, Metal non-slip, Metal fittings reinforcing box, Metal fittings of seperate boards in toilets, Light steel bed over ceiling, Hoist-rail, Metal hand-rail

xiii) Finishing

- Finishing shall be classified into interior work, exterior work, floor, wall and others.
- The followings shall be included in this item of Finishing; that is, Mortar under tiles, Mortar filling around window and door frame, Artificial stone cast in the site, Terrazzo cast in the site.

xiv) Door, window, shutter and joiner'work

- Door, window, shutter and joiner's work shall be classified into wood door, steel door, aluminum door, aluminum window, steel shutter and etc., and shall be summed up according to the following order.

  Cost of product (including metal fittings)
  Cost of anti-rust
  Cost of transportation (except from the Yokohama port to Chittagong)
  Cost of joiner's work

xv) Glass work

- The cost of glass work shall be shown as a composite cost of materials and work according to the specification.

xvi) Painting

- Painting shall firstly be classified into interior work and exterior, and secondly into the items of kinds of paint materials, and thirdly into the items kind of materials under paint.
- The cost of painting included in this item of xvi) Painting shall not repeatedly be included in any other item of xii) Metal work, xvii) Interior work, xviii) Miscellaneous work.
- The cost of painting on unit products in the item of xviii) Miscellaneous work (such as a shelf, a furniture, etc.) shall be included in the item of xviii) Miscellaneous work.

xvii) Interior work

Interior work shall include the followings.

- Finish of floor, wall, ceiling, etc.
- Flooring materials (such as polypropylene carpet and etc.)
- Stylofoam on walls and ceilings
- Mosquito net
- Asbesto board on ceilings
- Ceiling access hole

xviii) Miscellaneous work

Miscellaneous work shall include the followings; that is,

shelf, shelf with door, chair, desk, table, caunter, work table, locker, experiment table, throating shelf, hurdle board, experiment sink unit, sink, hand-rail, black curtain, curtain box, bed (straw mat).

xix) Temporary work in the other concerned work and overhead charge

(2) Electric Equipment Installation

See the specification.

(3) Sanitary Plumbing and Thermo-Humidistatic Equipment Installation

See the specification.

(4) Transportation

As above shown.

Ⅳ. Drawings

TABLE OF CONTENTS

ARCHITECTURAL DESIGN

NUMBER	DRAWING ITEM		SCALE
A — 0 — 1	LOCATION MAP, SCHEDULE OF BUILDING AREA OUTLINE OF BUILDING		———
— 0 — 2	BLOCK PLAN (EXTERIOR CONSTRUCTION)		1:600
— 0 — 3	DETAIL OF EXTERIOR CONSTRUCTION		1:5, 1:10, 1:20, 1:50
— 0 — 4	ROOF FLOOR PLAN		1:600
A — 1 — 1	MAIN BUILDING (1)	G.F. PLAN	1:100
— 1 — 2	〃	1 F. PLAN	〃
— 1 — 3	〃	ELEVATION	〃
— 1 — 4	MAIN BUILDING (1), (2)	SECTION	〃
— 1 — 5	MAIN BUILDING (1)	SECTION DETAIL	1:20
— 1 — 6	〃	〃	〃
— 1 — 7	〃	DETAILED PLAN, EXTEND ELEV.	1:30
A — 2 — 1	MAIN BUILDING (2)	G.F. PLAN	1:100
— 2 — 2	〃	1 F. PLAN	〃
— 2 — 3	〃	ELEVATION	〃
A — 3 — 1	AUDIO-VISUAL & CLASS ROOM G.F. PLAN, ELEVATION, SECTION		1:100
— 3 — 2	〃	SECTION DETAIL	1:20
A — 4 — 1	ASSEMBLY HALL G.F. PLAN, ELEVATION, SECTION		1:100
— 4 — 2	〃	SECTION DETAIL	1:20
A — 5,6 — 1	DINING ROOM SUB-STATION G.F. PLAN, ELEVATION, SECTION		1:100
— 5,6 — 2	〃	SECTION DETAIL	1:20
— 5,6 — 3	MAIN BLD.(1) DETAIL, DINING ROOM DETAIL		1:50
A — 7 — 1	HOSTEL (1) G.F. PLAN, 1F. PLAN		1:100
— 7 — 2	〃	ELEVATION, SECTION	〃
— 7 — 3	〃	SECTION DETAIL	1:20
— 7 — 4	〃	〃	〃
— 7 — 5	〃 (1X2X3)	DETAILED PLAN, EXTEND ELEVATION	1:30
A — 8,9 — 1	HOSTEL (2), (3) G.F. PLAN, ELEVATION, SECTION		1:100
— 8,9 — 2	〃	SECTION DETAIL	1:20
A — 10 — 1	COMMON ROOM G.F. PLAN, ELEVATION, SECTION, SECTION DETAIL		1:100, 1:20
A — 11 — 1	MACHINE STORE G.F. PLAN, ELEVATION, SECTION		1:100
— 11 — 2	〃	SECTION DETAIL	1:20
A — 12 — 1	MACHINERY WORK-SHOP & MACHINE STORE G.F. PLAN, ELEVATION, SECTION		1:100
— 12 — 2	〃	ELEVATION, SECTION	〃
— 12 — 3	〃	SECTION DETAIL	1:20
— 12 — 4	〃	〃	〃
A — 13 — 1	FIELD MANAGEMENT BUILDING G.F. PLAN, ELEVATION, SECTION		1:100
— 13 — 2	〃	ELEVATION, SECTION	〃
— 13 — 3	〃	SECTION DETAIL	1:20
— 13 — 4	〃	OTHER DETAIL	1:50, 1:20
A — 14 — 1	GARAGE G.F. PLAN, ELEVATION, SECTION		1:100
— 14 — 2	〃	SECTION DETAIL	1:20
A — 15 — 1	CORRIDOR SECTION DETAIL		1:20 1:10
A — 16 — 1	WATER SUPPLY TOWER	ELEVATION, SECTION	1:100
A — 16 — 2	〃	DETAIL	1:50 1:30
A — 00 — 1	SCHEDULE OF DOOR, WINDOW & SHUTTER		1:50
— 00 — 2	〃		〃
— 00 — 3	SCHEDULE OF FINISH (EXTERIOR & INTERIOR)		———
— 00 — 4	〃 (INTERIOR)		———
— 00 — 5	〃 (〃)		———
— 00 — 6	MISCELLANEOUS DETAIL		1:10

STRUCTURAL DESIGN

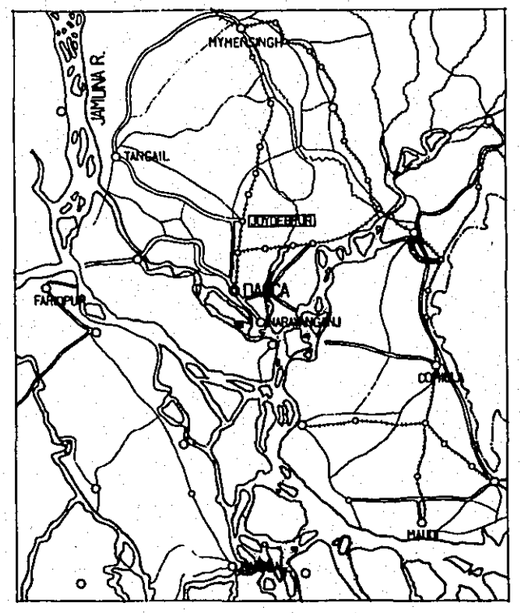
NUMBER	DRAWING ITEM	SCALE
S — 0 — 1	STRUCTURE STANDARD, GENERAL NOTE	———
— 0 — 2	〃 , FOUNDATION	———
— 0 — 3	〃 , COLUMN & BEAM	———
— 0 — 4	〃 , MISCELLANEOUS	———
— 0 — 5	〃 , SLAB	———
— 0 — 6	〃 , WALL	———
— 0 — 7	〃 , STAIRECASE	———
— 0 — 8	〃 , STEEL	———
S — 1,2 — 1	MAIN BUILDING (1) , PLAN (1)	1:100
— 1,2 — 2	〃 , 〃 (2)	〃
— 1,2 — 3	〃 , 〃 (3)	〃
— 1,2 — 4	〃 (2) , 〃 (1)	〃
— 1,2 — 5	〃 , 〃 (2)	〃
— 1,2 — 6	〃 , 〃 (3)	〃
— 1,2 — 7	〃 (1) , ELEVATION (1)	〃
— 1,2 — 8	〃 , 〃 (2)	〃
— 1,2 — 9	〃 , 〃 (3)	〃
— 1,2 — 10	〃 (1),(2), SCHEDULE (1)	1:30
— 1,2 — 11	〃 , 〃 (2)	〃
— 1,2 — 12	〃 , 〃 (3)	〃
— 1,2 — 13	〃 , DETAIL	〃
S — 3 — 1	AUDIO-VISUAL & CLASS ROOM, PLAN	1:100
— 3 — 2	〃 , ELEVATION	〃
— 3 — 3	〃 , SCHEDULE	1:30
— 3 — 4	〃 , DETAIL	〃
S — 4 — 1	ASSEMBLY HALL, PLAN	1:100
— 4 — 2	〃 , ELEVATION	〃
— 4 — 3	〃 , SCHEDULE	1:30
— 4 — 4	〃 , DETAIL (1)	〃
— 4 — 5	〃 , (2)	〃
S — 5,6 — 1	DINING ROOM & SUB-STATION, PLAN (1)	1:100
— 5,6 — 2	〃 , 〃 (2)	〃
— 5,6 — 3	〃 , SCHEDULE	1:30
— 5,6 — 4	〃 , ELEVATION	1:100 1:30
— 5,6 — 5	〃 , DETAIL	1:30
— 5,6 — 6	〃 , ELEVATION	1:30 1:100
S — 7,8,9 — 1	HOSTEL (1) , PLAN	1:100
— 7,8,9 — 2	〃 , ELEVATION	〃
— 7,8,9 — 3	〃 (2),(3) , PLAN	〃
— 7,8,9 — 4	〃 , ELEVATION	〃
— 7,8,9 — 5	〃 , SCHEDULE	1:30
— 7,8,9 — 6	〃 (1),(2) , DETAIL (1)	〃
— 7,8,9 — 7	〃 (3) , 〃 (2)	〃
S — 10 — 1	COMMON ROOM , PLAN, ELEVATION	1:100
— 10 — 2	〃 , SCHEDULE	1:30
— 10 — 3	〃 , DETAIL	〃
S — 11 — 1	MACHINE STORE , PLAN	1:100
— 11 — 2	〃 , ELEVATION, SCHEDULE	〃
— 11 — 3	〃 , DETAIL	1:30
S — 12 — 1	MACHINERY WORKSHOP & MACHINE STORE, PLAN	1:100
— 12 — 2	〃 , ELEVATION	〃
— 12 — 3	〃 , SCHEDULE	1:30
— 12 — 4	〃 , DETAIL	〃
S — 13 — 1	FIELD MANAGEMENT BUILDING, PLAN	1:100
— 13 — 2	〃 , ELEVATION	1:100
— 13 — 3	〃 , ELEVATION, SCHEDULE	1:30 1:100
— 13 — 4	〃 , DETAIL	1:30
S — 14 — 1	GARAGE , PLAN	1:100
— 14 — 2	〃 , ELEVATION, SCHEDULE	1:20 1:30 1:100
— 14 — 3	〃 , DETAIL	1:30
S — 15 — 1	CORRIDOR , PLAN	1:100
— 15 — 2	〃 , DETAIL	1:30
S — 16 — 1	WATER SUPPLY TOWER	〃

EQUIPMENT DESIGN

NUMBER	DRAWING ITEM	SCALE
	PLUMBING EQUIPMENT	
P — 1	LOCATION MAP, LEGEND & TABLE OF CONTENTS	———
— 2	SITE PLAN	1:600
— 3	MAIN BUILDING (1), G.F. PLAN	1:100
— 4	〃 , 1 F. PLAN	〃
— 5	MAIN BUILDING (2), G.F. PLAN	〃
— 6	〃 , 1 F. PLAN	〃
— 7	DINING ROOM, SUB-STATION, COMMON ROOM AND HOSTEL (2),(3) PLAN	〃
— 8	HOSTEL (1) G.F. PLAN, 1F. PLAN	〃
— 9	AUDIO-VISUAL & CLASS ROOM AND FIELD MANAGEMENT BUILDING PLAN	〃
— 10	MACHINE STORE AND MACHINERY WORK-SHOP & MACHINE STORE PLAN	〃
— 11	ASSEMBLY HALL AND GARAGE PLAN	〃
	ELECTRIC EQUIPMENT	
E — 1	LOCATION MAP, LEGEND AND TABLE OF CONTENTS	———
— 2	INCOMIMING HIGH TENSION PLAN	1:50, 1:200
— 3	SUB-STATION SINGLE LINE CONNECTION DIAGRAMME	———
— 4	ELECTRICAL AND GENERATOR ROOM PLAN AND DETAIL	1:10, 1:50
— 5	LOW TENSION MAIN LINE PLAN	———
— 6	DIAGRAMME PLAN (L.T MAIN LINE)	———
— 7	CABINET PANNEL CONNECTION DIAGRAMME	———
— 8	CABINET PANNEL AND CONTROL BOARD CONNECTION DIAGRAMME	———
— 9	INSTRUMMET FIGURE PLAN	———
— 10	MAIN BUILDING (1) G.F. PLAN	1:100
— 11	〃 1 F. PLAN	〃
— 12	MAIN BUILDING (2) G.F. PLAN	〃
— 13	〃 1 F. PLAN	〃
— 14	AUDIO-VISUAL & CLASS G.F. PLAN	〃
— 15	ASSEMBLY HALL G.F. PLAN	〃
— 16	DINING ROOM, SUB-STATION G.F. PLAN	〃
— 17	HOSTEL (1) GF. PLAN, 1F. PLAN	〃
— 18	〃 (2),(3) GF. PLAN	〃
— 19	COMMON ROOM G.F. PLAN	〃
— 20	MACHINE STORE G.F. PLAN	〃
— 21	MACHINERY WORK-SHOP & MACHINE STORE G.F. PLAN	〃
— 22	FIELD MANAGEMENT BUILDING G.F. PLAN	〃
— 23	GARAGE G.F. PLAN	〃
— 24	CORRIDOR AND EXTERIOR PLAN	1:600
— 25	CONSTRUCTION DETAILED PLAN G.F. PLAN	1:50
— 26	LIGHTING SYSTEM AND STANDARD SPECIFICATION	———

NOTE: A — 1 — 2
- 2 → NUMBER
- 1 → BUILDING NUMBER (0,00 — OTHERS)
- A → ARCHITECTURAL DESIGN (S — STRUCTURAL DESIGN, P — PLUMBING EQUIPMENT, E — ELECTRIC EQUIPMENT)

Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE
No.
Scale
Approved by: Designed by: Date
JAPAN INTERNATIONAL CO-OPERATION AGENCY
JEC JAPAN ENGINEERING CONSULTANTS CO., LTD.

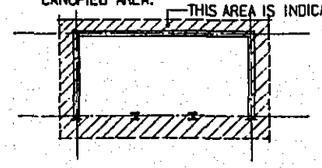


LOCATION MAP

OUTLINE OF BUILDING	
SITE AREA	76,207.30 m²
BUILDING COVERAGE AREA	8051.26 m²
TOTAL FLOOR AREA	8,703.71 m²
HEIGHT OF WATER SUPPLY TOWER	30.00 m
CONTENTS OF CONSTRUCTION	BUILDING CONSTRUCTION, PLUMBING WORK,
	ELECTRIC WORK AND EXTERIOR CONSTRUCTION

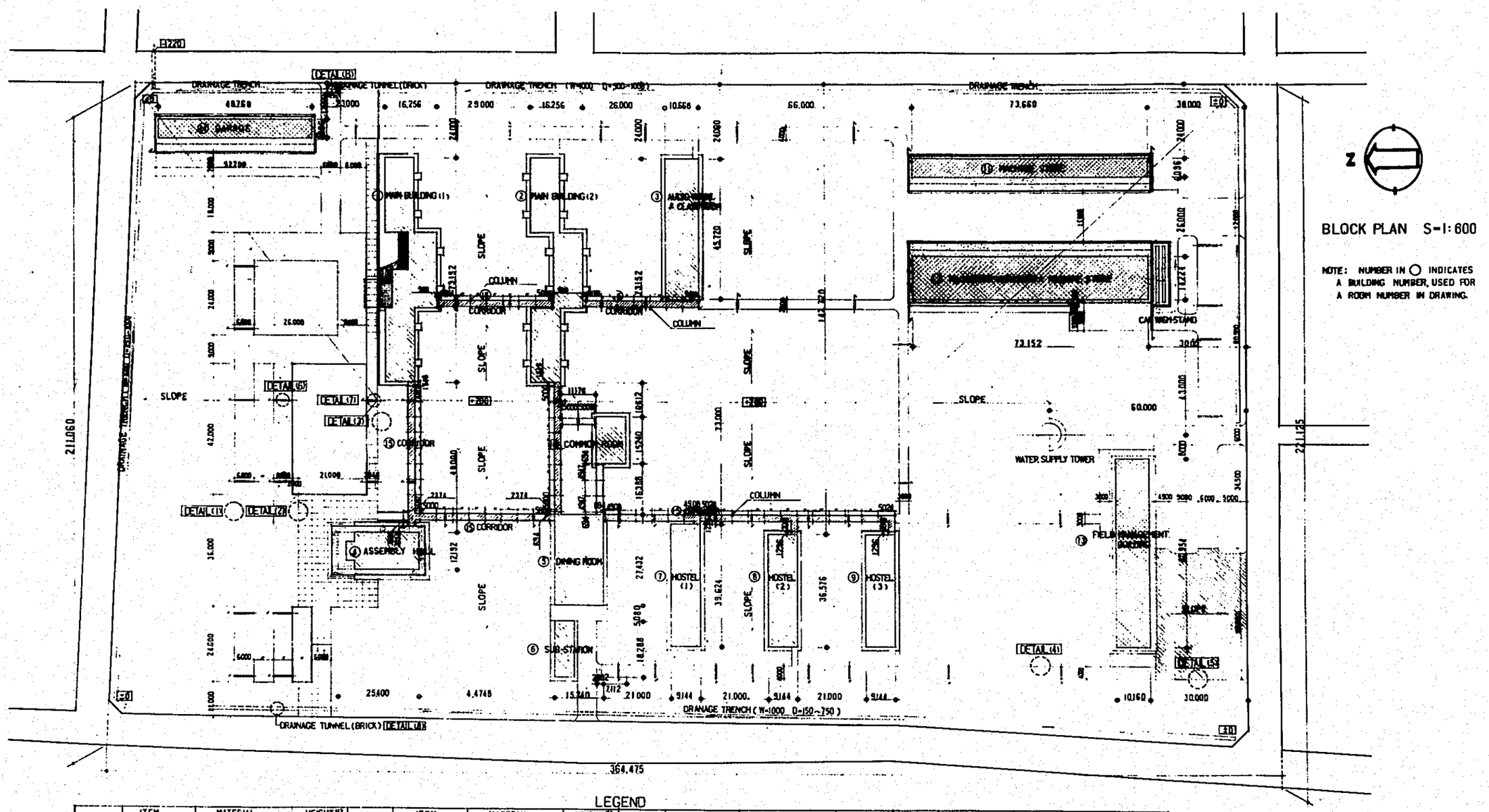
BUILDING	STRUCTURE & HEIGHT: MAIN STRUCTURE	BUILDING HEIGHT	SCHEDULE OF FLOOR AREA: ITEM	GROUND F.	FIRST F.	SUB-TOTAL	TOTAL
① MAIN BUILDING (1)	REINFORCED CONCRETE BRICK	8,354. mm	OTHERS	585.28 m²	523.35 m²	1,108.63 m²	1464.76 m²
			CORRIDOR, ETC.*	210.35 (11.61)	145.55	356.13 (11.61)	(11.61)
② 〃 (2)	〃	〃	〃	455.33	455.73	910.46	1,337.82
			〃	213.48	213.48	427.34	(0.00)
③ AUDIO-VISUAL & CLASS ROOM	〃	4,392.	〃	394.84		394.84	424.74
			〃	29.90		29.90	(0.00)
④ ASSEMBLY HALL	〃	6,221.	〃	247.74		247.74	309.67
			〃	61.93 (169.39)		61.93 (169.39)	(169.39)
⑤ DINING ROOM	〃	5,154.	〃	418.06		418.06	449.03
			〃	30.97		30.97	(0.00)
⑥ SUB-STATION	〃	4,637.	〃	111.48		111.48	111.48
							(0.00)
⑦ HOSTEL (1)	〃	7,389.	〃	260.13	260.13	520.26	724.64
			〃	102.19	102.19	204.38	(0.00)
⑧ 〃 (2)	〃	4,214.	〃	260.13		260.13	334.85
			〃	74.32		74.32	(0.00)
⑨ 〃 (3)	〃	〃	〃	260.13		260.13	338.45
			〃	74.32		74.32	(0.00)
⑩ COMMON ROOM	〃	4,317.	〃	108.99		108.37	139.34
			〃	30.97		30.97	(0.00)
⑪ MACHINE STORE	STEEL BRICK	4,645.	〃	449.63		449.63	449.63
			〃	(239.17)		(239.17)	(239.17)
⑫ MACHINERY WORKSHOP & MACHINE STORE	〃	6,444	〃	1040.51		1040.51	1,040.51
			〃	(253.90)		(253.90)	(253.90)
⑬ FIELD MANAGEMENT BUILDING	〃	6,622.	〃	619.35		619.35	619.35
			〃	(209.20)		(209.20)	(209.20)
⑭ GARAGE	〃	3634.	〃	297.29		297.29	297.29
			〃	(164.20)		(164.20)	(164.20)
⑮ CORRIDOR	REINFORCED CONCRETE	3300.	〃	667.13		667.13	667.13
							(0.00)
. SUB TOTAL			OTHERS CORRIDOR, ETC.*	5,507.59	1,238.77	6,746.30	8703.71
				1475.99 (1047.67)	461.42	857.41 (1047.67)	(1047.67)
TOTAL				7,003.58	1,700.13	8703.71	
				(1047.67)	(0.00)	(1047.67)	

NOTE (1): FLOOR AREA INDICATES AREA SURROUNDED BY WALLS AND/OR COLUMNS AND OTHER CANOPIED AREA. FIGURES IN ( ) INDICATE ABOVE MENTIONED CANOPIED AREA.



NOTE (2): CORRIDOR ETC.* INCLUDE OPENED AND COVERED AREAS.

JAPAN INTERNATIONAL CO-OPERATION AGENCY	Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	No. A-0-1
	LOCATION MAP, SCHEDULE OF BUILDING AREA, OUTLINE OF BUILDING	Scale: —
	JEC JAPAN ENGINEERING CONSULTANTS CO., LTD.	Date: 15.07.1975



BLOCK PLAN S=1:600

NOTE: NUMBER IN ○ INDICATES A BUILDING NUMBER, USED FOR A ROOM NUMBER IN DRAWING.

LEGEND

	ITEM	MATERIAL	HEIGHT (1)
	BUILDING (1)		+684mm
	BUILDING (2)		+432
	CORRIDOR		+608
	ROOF		
	PORCH		
	BERM	GRAVEL	
	BERM	CONCRETE	
	POND		
	PAVEMENT	CONCRETE OVER BRICK	+304mm
	ROAD (1)	ASPHALT OVER TWO LAYERS BRICK	+152
	ROAD (2)	CHIPPED BRICK	+304
	WORK AREA	ASPHALT OVER ONE LAYER BRICK	+304
	DRAINAGE PIPE (2)	VINYL CHLORIDE	
	DRAINAGE DITCH (1) (3)	IRON GRID COVER	
	DRAINAGE DITCH (1) (3)	WITHOUT COVER	
	DRAINAGE DITCH (2) (3)	IRON GRID COVER	

REMARKS : (1) FIGURES INDICATE HEIGHT OF FLOOR LEVEL FROM THE ASSUMED BASE GROUND LINE, 33'-5" (10.22m) FROM THE SEA LEVEL, WHICH IS CONVERTIBLE ACCORDING TO EARTH WORK.

(2) DIAMETER IS 30mm UNDER CORRIDOR AND 20 mm UNDER ROAD OF CHIPPED BRICK SURFACE.

(3) WIDTH 200mm, DEPTH 200mm

(4) FIGURES OF GROUND INDICATE HEIGHT OF FINISHED GROUND FROM THE ASSUMED BASE GROUND LINE, 34'-00" (10.4 m) FROM THE SEA LEVEL.

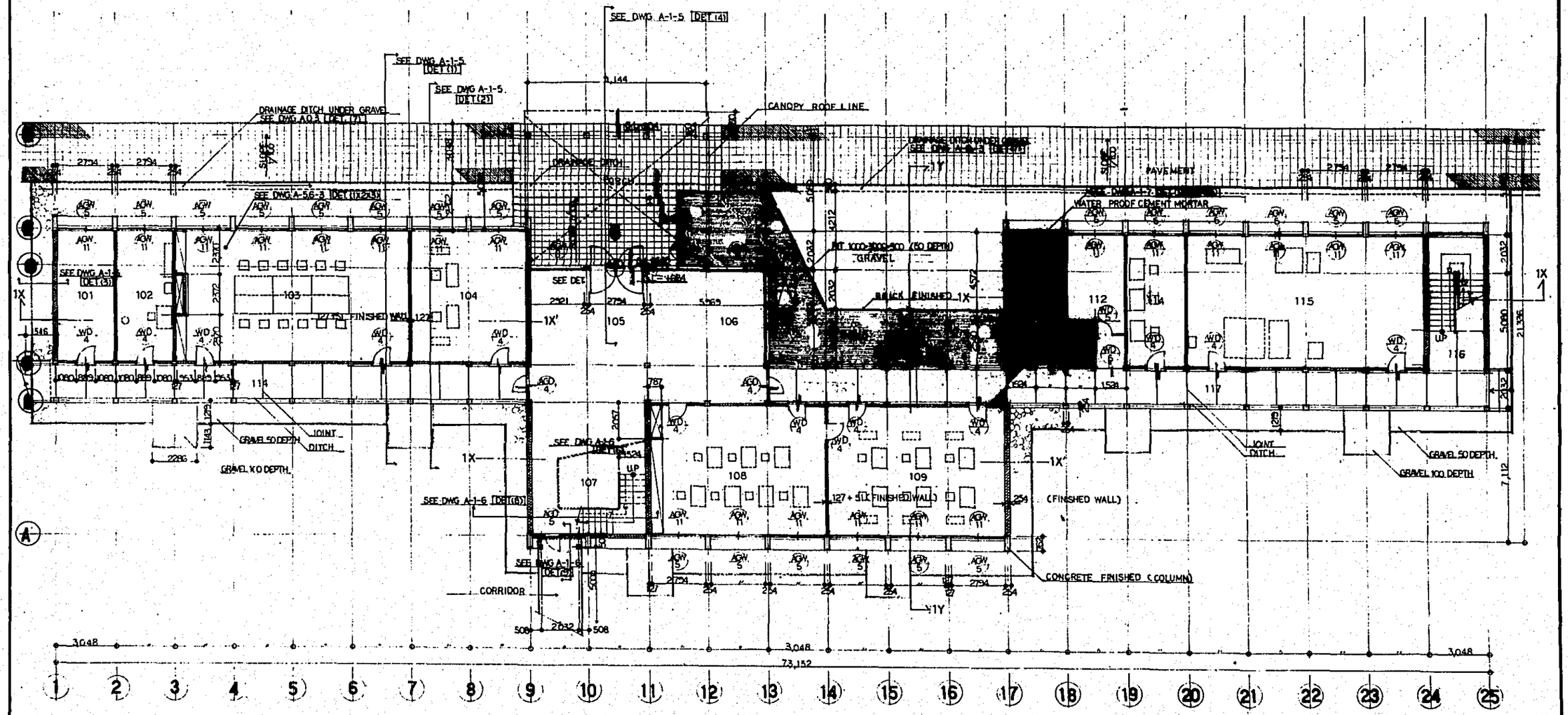
CENTRAL EXPERIMENTAL RESOURCES DEVELOPMENT INSTITUTE A-0-2

BLOCK PLAN (EXTERIOR CONSTRUCTION) 1:600

JAPAN INTERNATIONAL CO-OPERATION AGENCY

'75.07.1975

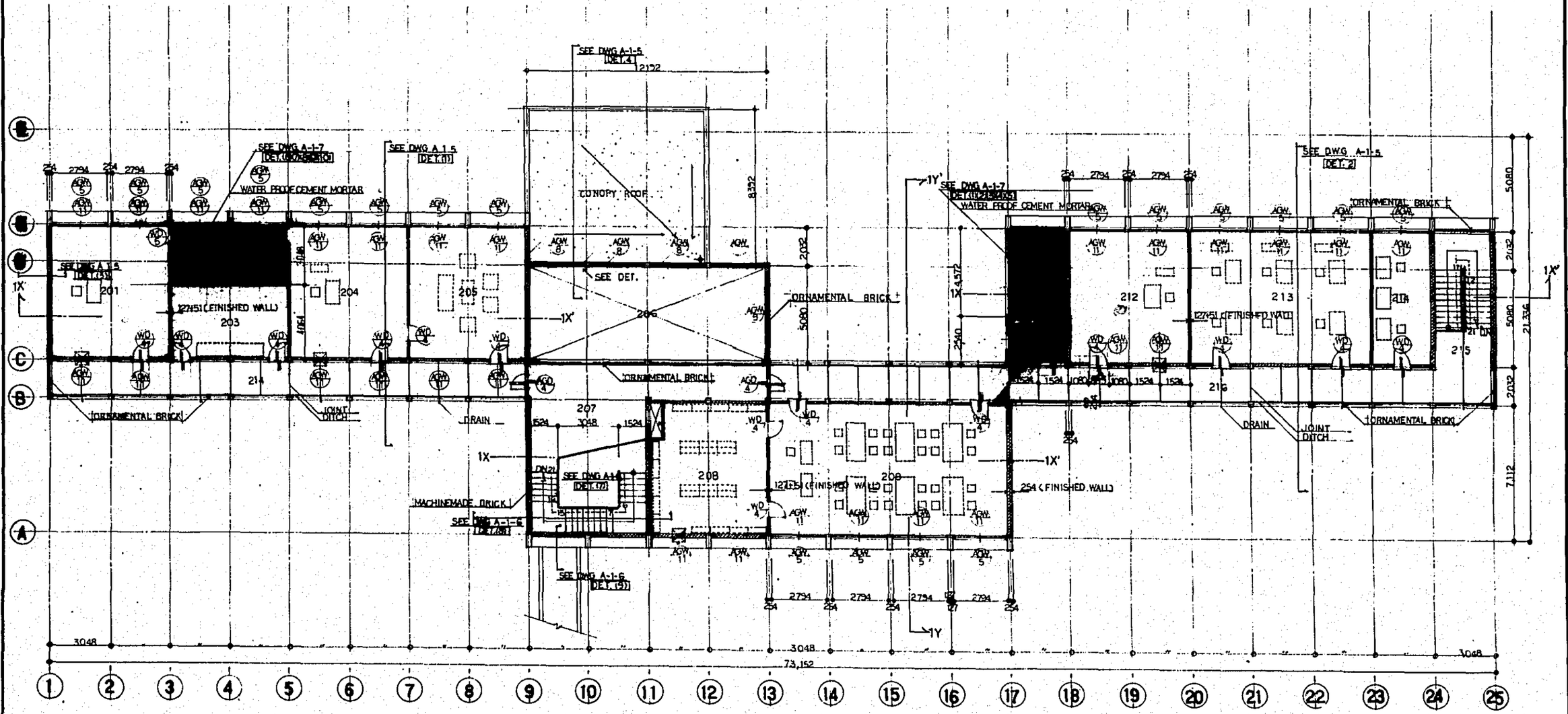
ROOM NUMBER	ROOM	ROOM NUMBER	ROOM
1 — 101	TELEPHONE EXCHANGE ROOM.	1 — 110	TOILET
1 — 102	FIRSTAID ROOM.	1 — 111	KETTLE ROOM
1 — 103	MEETING ROOM.	1 — 112	PEON ROOM
1 — 104	DY.DERECTOR OFFICE.	1 — 113	LADIES TOILET
1 — 105	ENTRANCE HALL.	1 — 114	ARTIST OFFICE
1 — 106	RECEPTIONIST CORNER.	1 — 115	PRESS WORK SHOP
1 — 107	STAIR HALL	1 — 116	STAIR CASE
1 — 108	ASSISTANT CLERK OFFICE	1 — 117	CORRIDOR
1 — 109	OFFICE ROOM		



GROUND FLOOR PLAN S=1/100

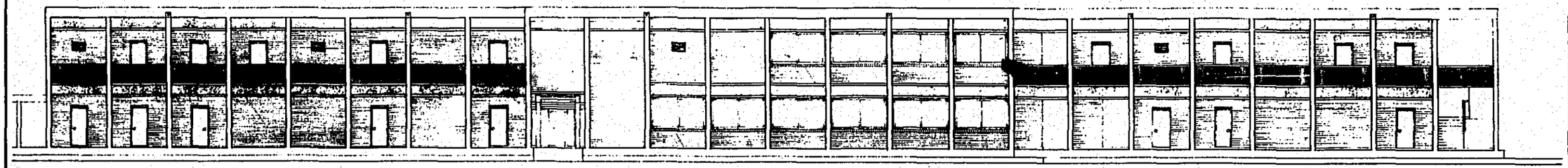
JAPAN INTERNATIONAL CO-OPERATION AGENCY	Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE MAIN BUILDING (1) GROUND FLOOR PLAN Approved by / Drawn by: D.S.	No. A-1-1 Scale 1:100 Date 15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	

ROOM NUMBER	ROOM	ROOM NUMBER	ROOM
1 — 201	ASSOCIATE DIRECTOR OFFICE.	1 — 209	READING ROOM
1 — 202	TOILET	1 — 210	TOILET
1 — 203	SECRETARIAT ROOM	1 — 211	KETTLE ROOM
1 — 204	DERECTOR OFFICE	1 — 212	PRINCIPAL INFORMATION OFFICER, O.
1 — 205	GUEST ROOM	1 — 213	INFORMATION OFFICE
1 — 206	OPEN SPACE ABOVE	1 — 214	TYPIST OFFICE
1 — 207	STAIR HALL	1 — 215	STAIR CASE
1 — 208	BOOK STORE	1 — 216	CORRIDOR

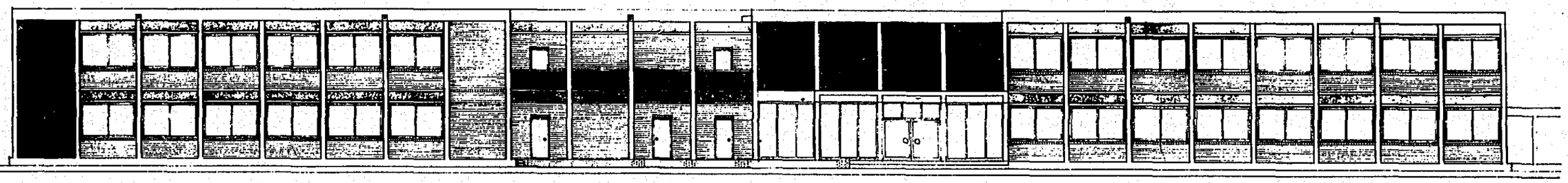


1ST FLOOR PLAN S—1/100

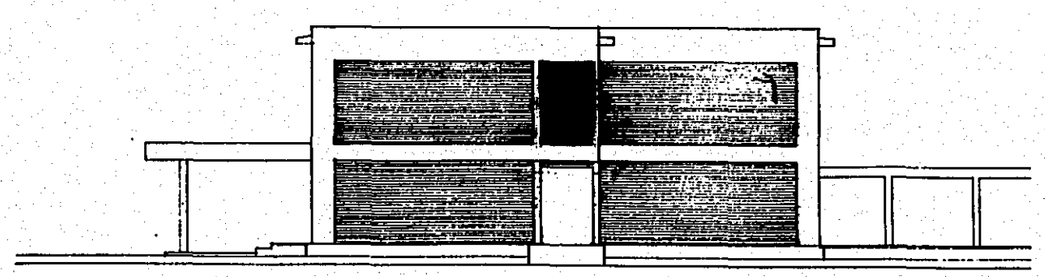
JAPAN INTERNATIONAL CO-OPERATION AGENCY	Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE MAIN BUILDING (1) FIRST FLOOR PLAN	No. A-1-2 Scale 1:100 Date 15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	



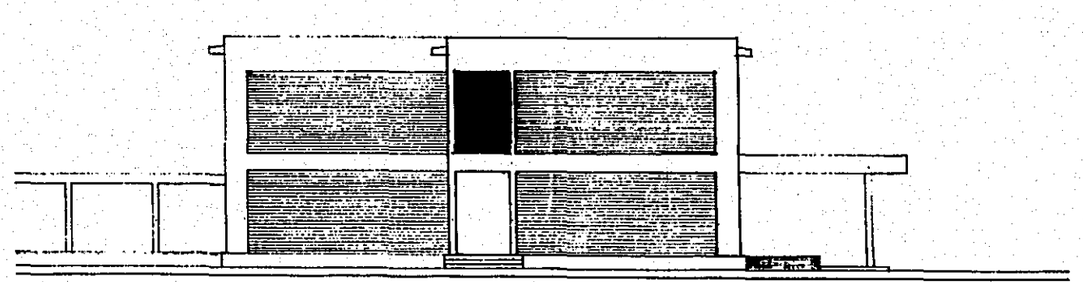
SOUTH ELEVATION S:1/100



NORTH ELEVATION S:1/100

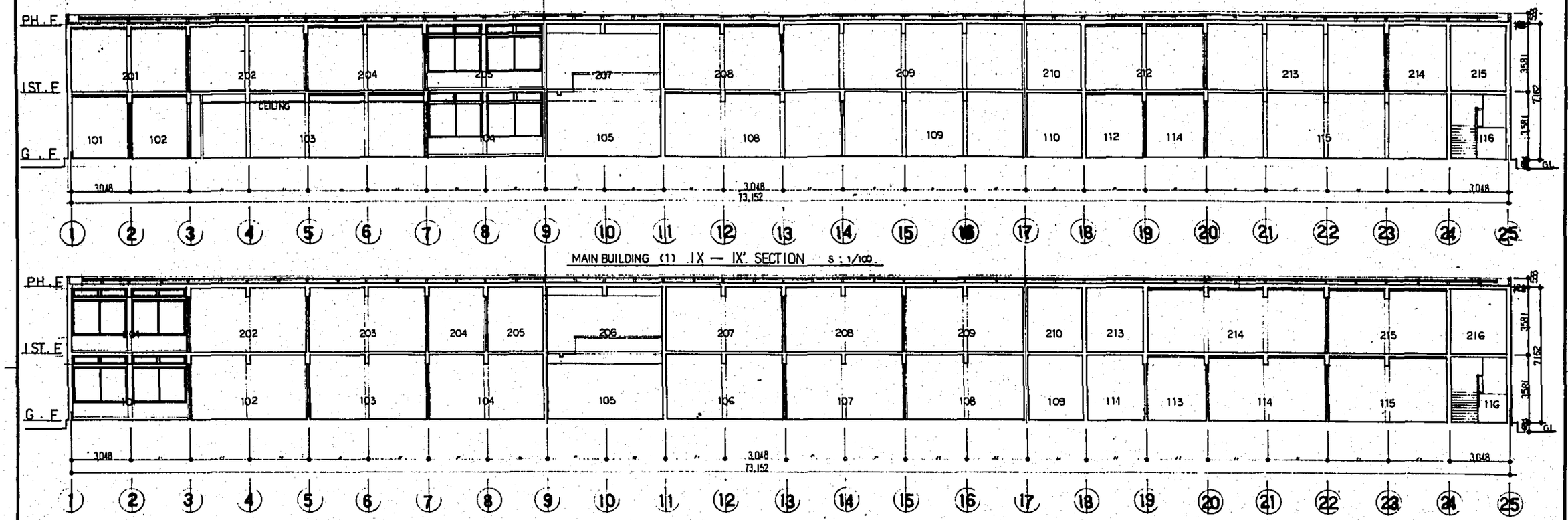


WEST ELEVATION S: 1/100



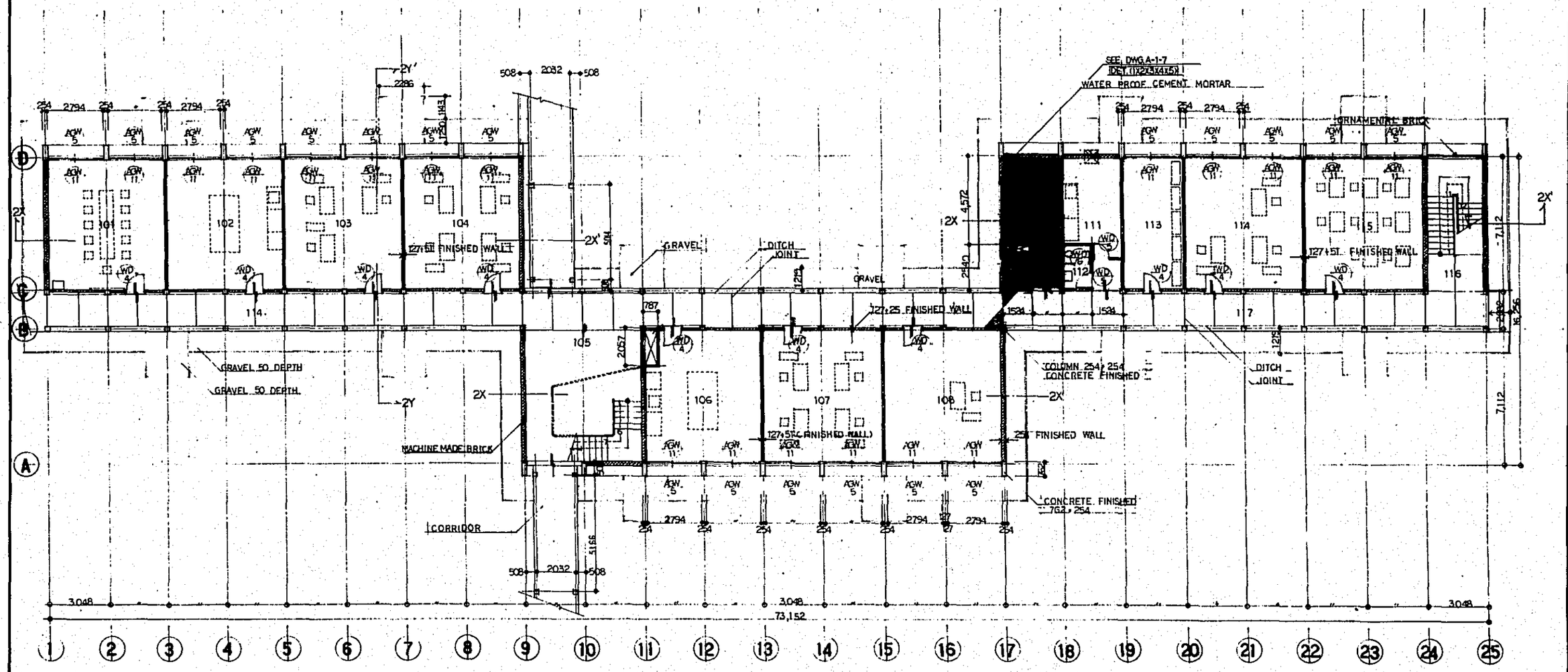
EAST ELEVATION S: 1/100

JAPAN INTERNATIONAL CO-OPERATION AGENCY	CENTRAL [illegible] DEVELOPMENT INSTITUTE MAIN BUILDING (1) ELEVATION	A 1-3 1:100 15 SY. 175
	JAPAN [illegible] CONSULTANTS CO., LTD.	



CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	No. A- 1-4
MAIN BUILDING (1), (2) SECTION	Scale 1:100
JAPAN INTERNATIONAL CO-OPERATION AGENCY	Date 15.07.1975
JAPAN ENGINEERING CONSULTANTS CO., LTD.	

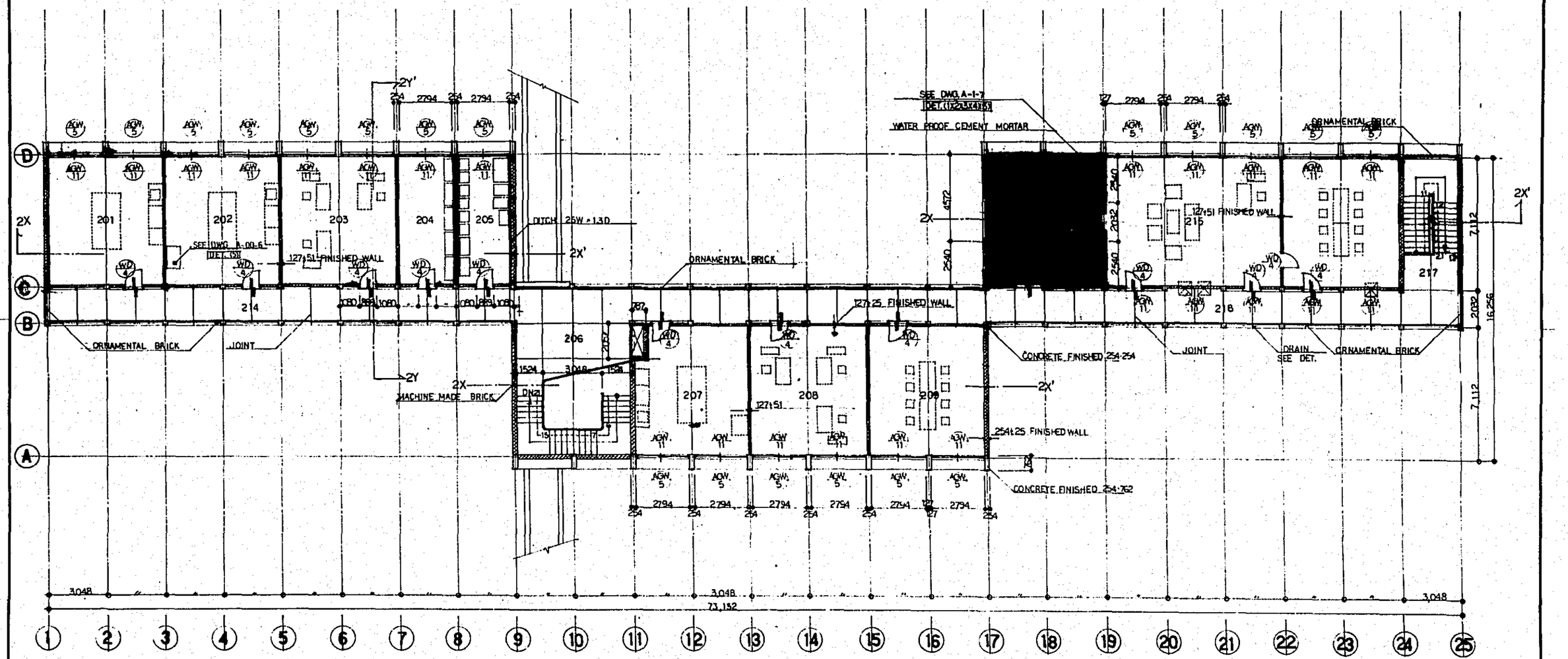
ROOM NUMBER	ROOM	ROOM NUMBER	ROOM
2 — 101	EXPERIMENT CLASS ROOM	2 — 110	KETTLE BOOM
2 — 102	HORTICULTURE LABORATORY	2 — 111	DARK ROOM
2 — 103	HORTICULTURE SPECIALIST OFFICE	2 — 112	LADIES TOILET
2 — 104	EXTENSION SPECIALIST OFFICE	2 — 113	EQUIPMENT STORE
2 — 105	HALL	2 — 114	FARM MANAGEMENT SPECIALIST OFFICE
2 — 106	AGRONOMY LABORATORY	2 — 115	TYPIST OFFICE
2 — 107	AGRONOMIST OFFICE	2 — 116	STAIR CASE
2 — 108	PRINCIPAL AGRONOMIST OFFICE	2 — 117	CORRIDOR
2 — 109	TOILET		



GROUND FLOOR PLAN S=1/100

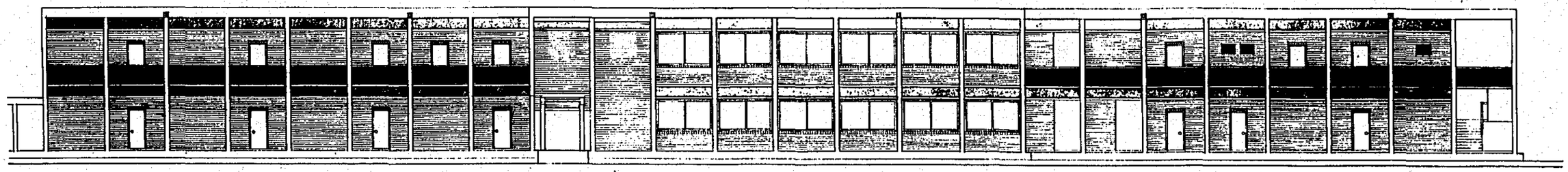
JAPAN INTERNATIONAL CO-OPERATION AGENCY	Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	No. A-2-1
	MAIN BUILDING (2) GROUND FLOOR PLAN	Scale 1:100
	D.S.	Date 15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	

ROOM NUMBER	ROOM	ROOM NUMBER	ROOM
2 — 201	ASSAY ROOM	2 — 210	TOILET
2 — 202	SOIL & FERTILIZER LABORATORY	2 — 211	KETTLE ROOM
2 — 203	SOIL & FERTILIZER SPECIALIST OFFICE	2 — 212	TOILET
2 — 204	CHEMICAL STORE	2 — 213	KETTLE ROOM
2 — 205	ASEPTIC & CULTURE ROOM	2 — 214	SHOWER ROOM
2 — 206	HALL	2 — 215	ADVISOR ROOM
2 — 207	PLANT PROTECTION LABORATORY	2 — 216	MEETING ROOM
2 — 208	PLANT PROTECTION SPECIALIST OFFICE	2 — 217	STAIR CASE
2 — 209	MEETING ROOM	2 — 218	CORRIDOR

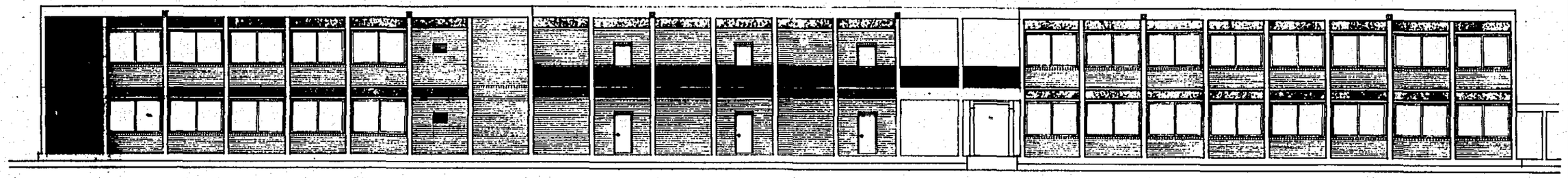


1 ST FLOOR PLAN S-1/100

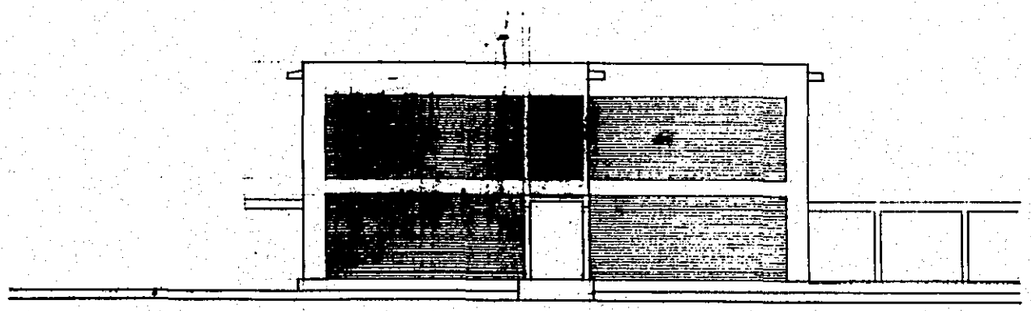
JAPAN INTERNATIONAL CO-OPERATION AGENCY	Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	No. A-2-2
	MAIN BUILDING (2) FIRST FLOOR PLAN	1:100
	R.S.	15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	



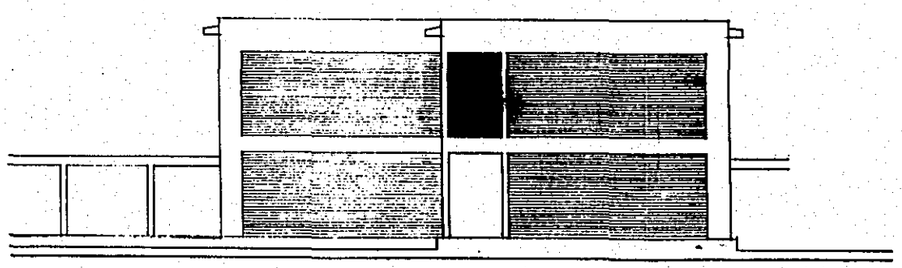
SOUTH. ELEVATION S : 1/100



NORTH ELEVATION S : 1/100



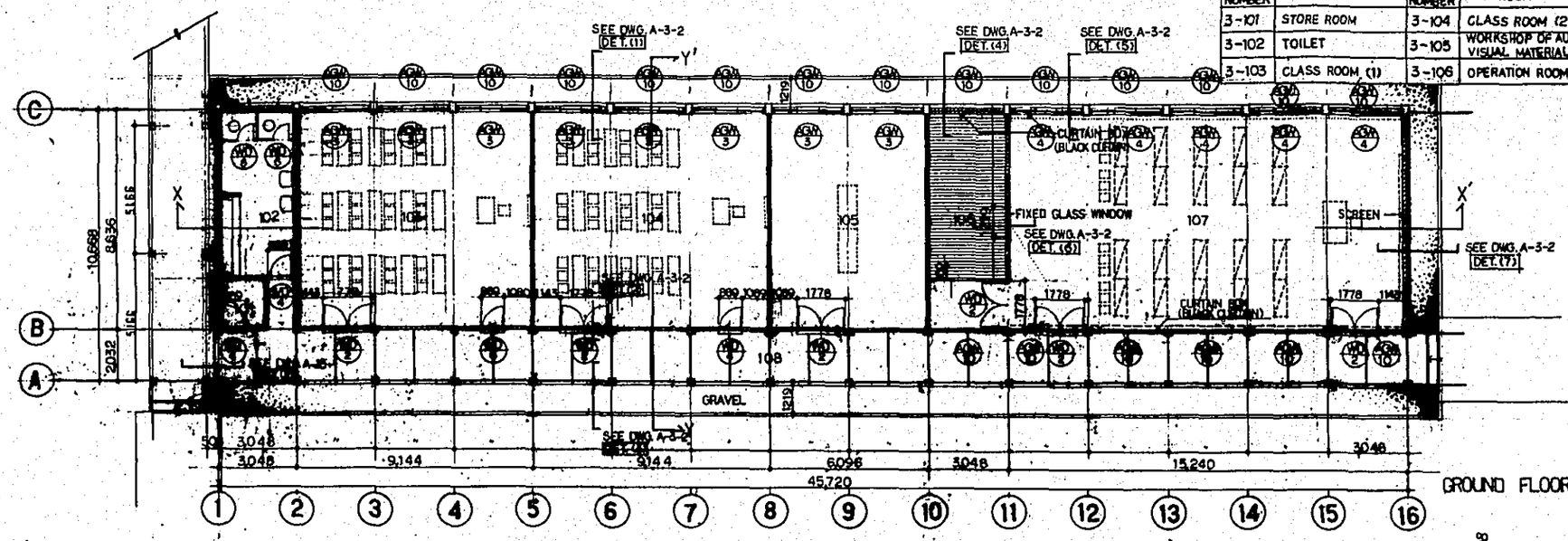
WEST ELEVATION S : 1/100



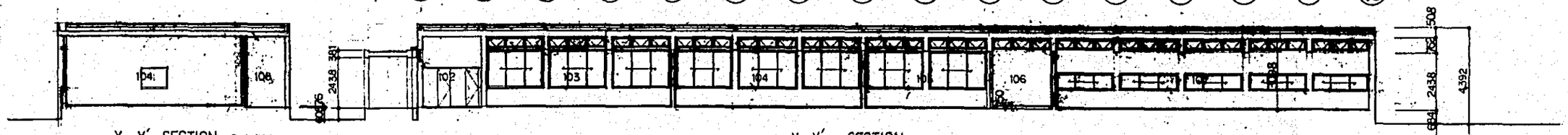
EAST ELEVATION S : 1/100

JAPAN INTERNATIONAL CO-OPERATION AGENCY	Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	No. A-2-3
	MAIN BUILDING (2) ELEVATION	Scale 1:100
	R.S.	Date 15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	

ROOM NUMBER	ROOM	ROOM NUMBER	ROOM	ROOM NUMBER	ROOM
3-101	STORE ROOM	3-104	CLASS ROOM (2)	3-107	AUDIO VISUAL R.
3-102	TOILET	3-105	WORKSHOP OF AUDIO VISUAL MATERIALS	3-108	CORRIDOR
3-103	CLASS ROOM (1)	3-106	OPERATION ROOM	-	



GROUND FLOOR PLAN S 1/100

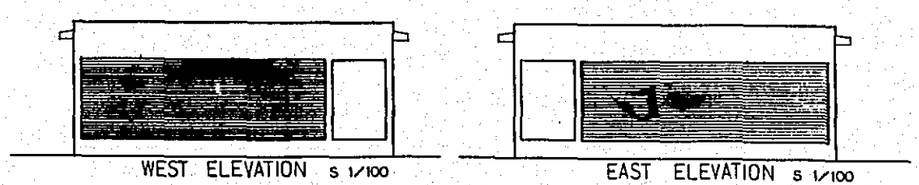


Y–Y′ SECTION S 1/100

X–X′ SECTION S 1/100

SOUTH ELEVATION S 1/100

NORTH ELEVATION S 1/100

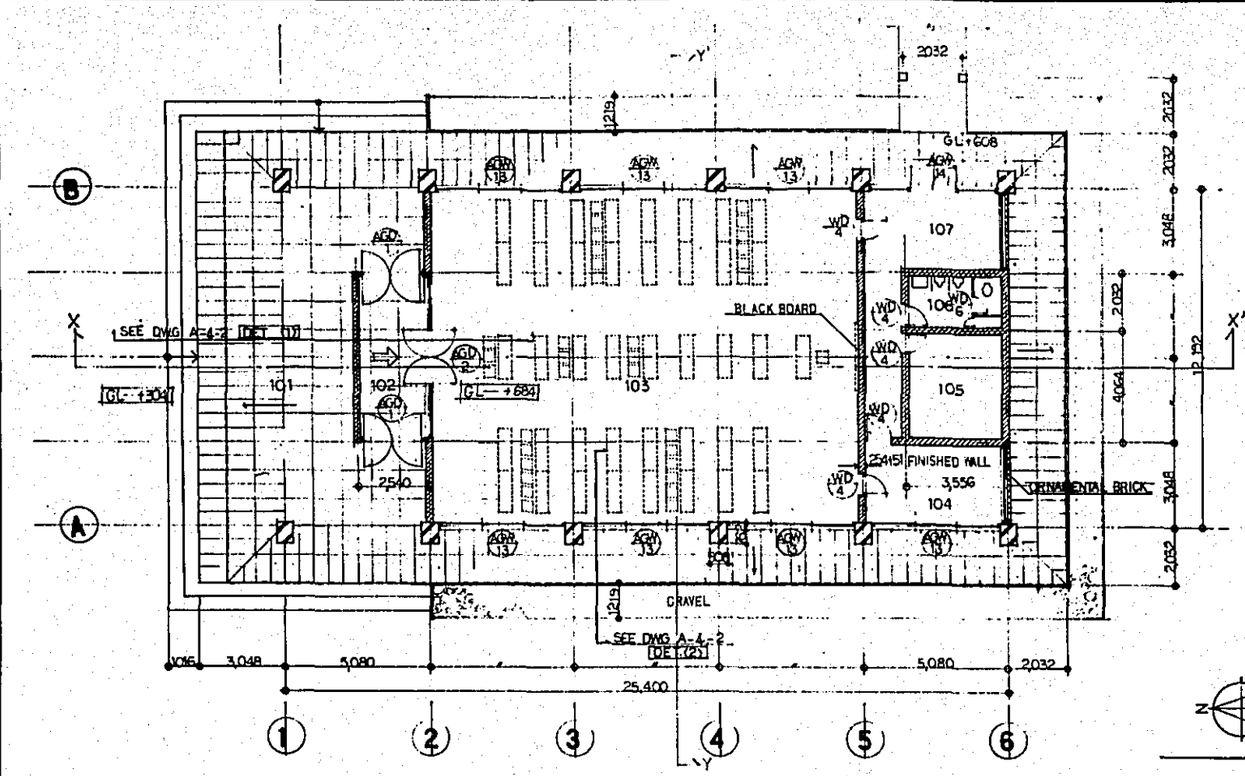


WEST ELEVATION S 1/100

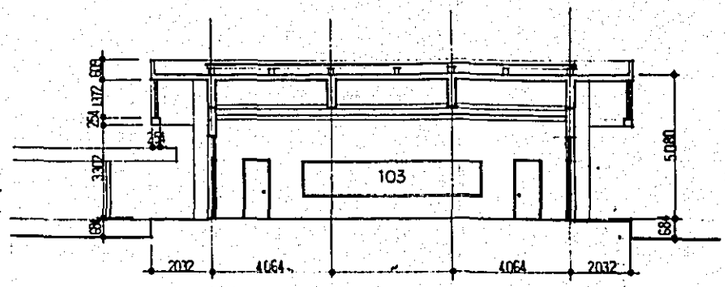
EAST ELEVATION S 1/100

JAPAN INTERNATIONAL CO-OPERATION AGENCY	Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	No. A-3-1
	AUDIO-VISUAL & CLASS ROOM GROUND FLOOR PLAN, ELEVATION, SECTION	Scale 1:100
	D.S.	Date 15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	

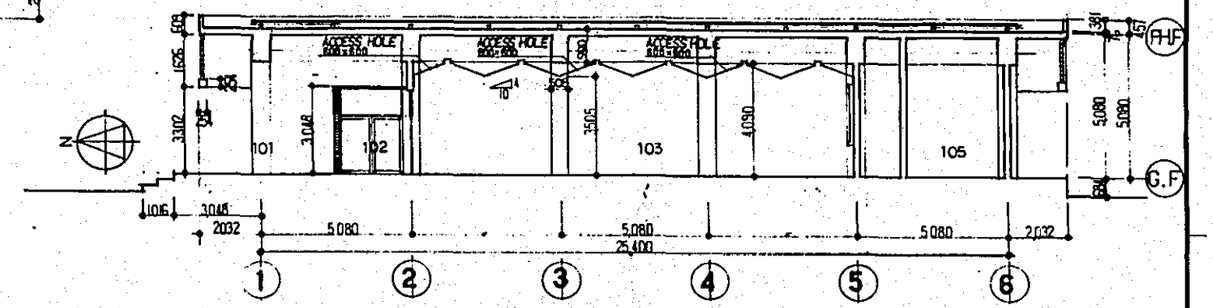
ROOM NUMBER	ROOM	ROOM NUMBER	ROOM
4 — 101	PORCH	4 — 105	STORE ROOM
4 — 102	ENTRANCE	4 — 106	TOILET
4 — 103	ASSEMBLY HALL	4 — 107	FRONT ROOM
4 — 104	WAITING ROOM	4 — 108	CORRIDOR



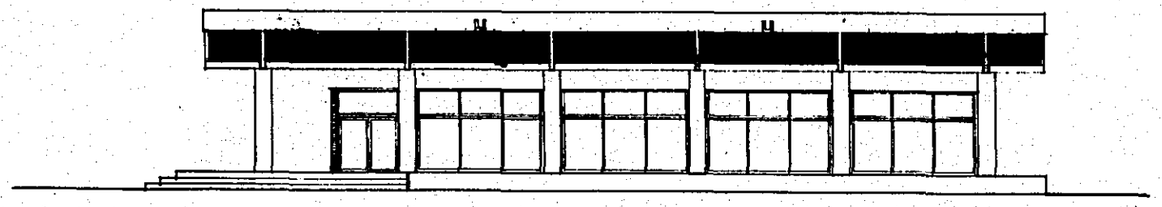
GROUND FLOOR PLAN S: 1/100



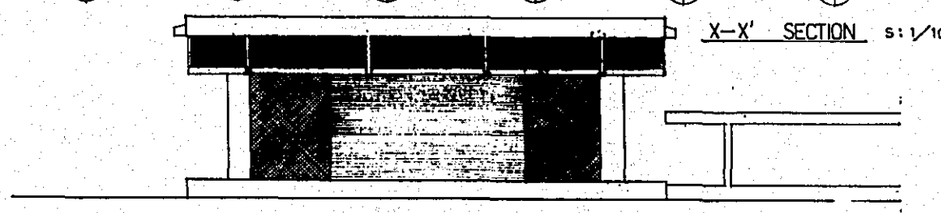
Y-Y SECTION S: 1/100



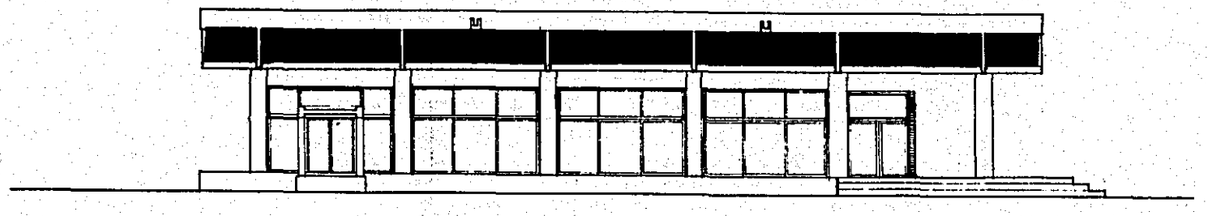
X–X' SECTION S: 1/100



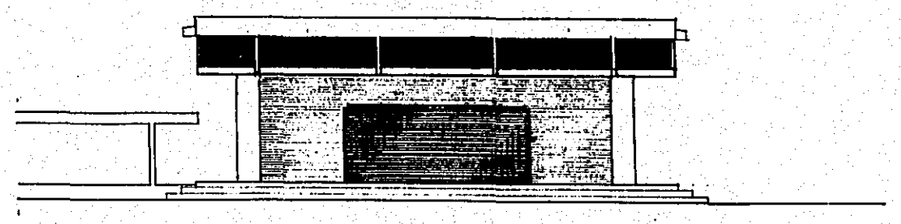
WEST ELEVATION S: 1/100



SOUTH ELEVATION S: 1 100



EAST ELEVATION S: 1/100

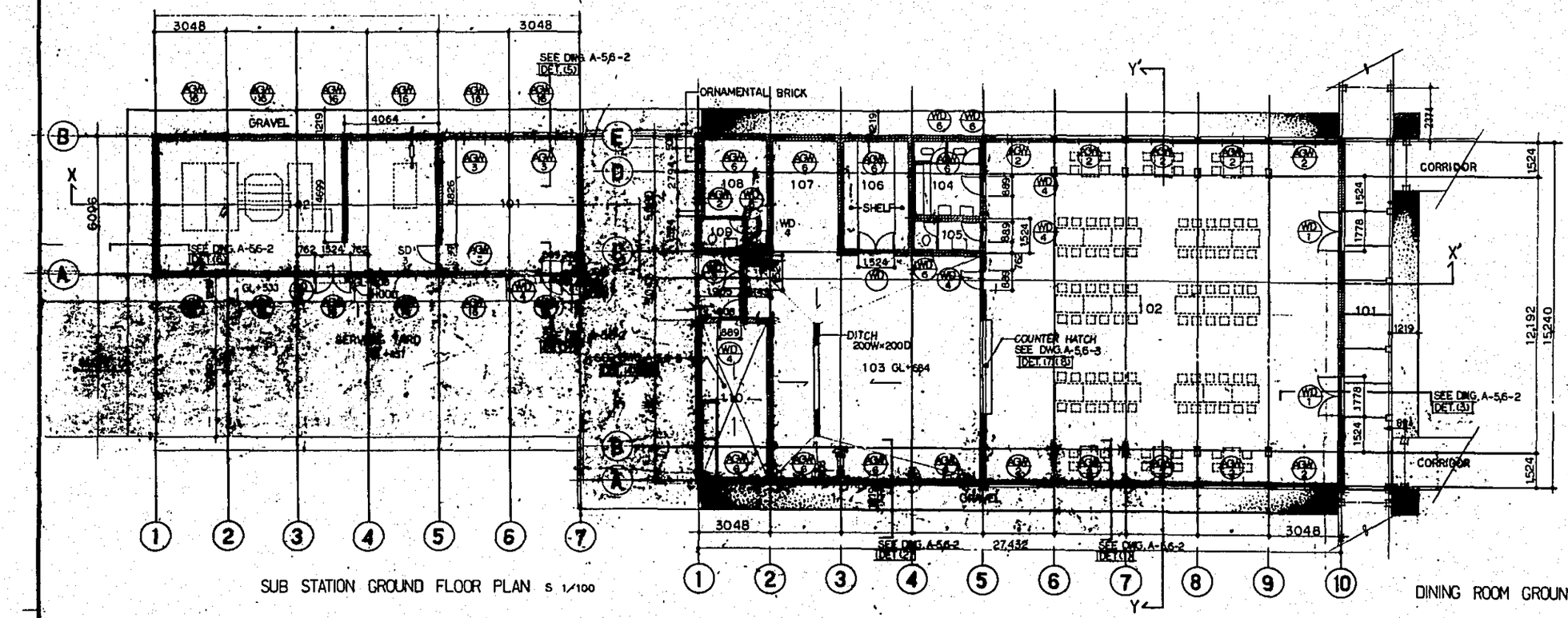


NORTH ELEVATION S: 1/100

JAPAN INTERNATIONAL CO-OPERATION AGENCY

Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	No. A-4-1
ASSEMBLY HALL GROUND FLOOR PLAN, ELEVATION, SECTION	Scale 1:100
P.S.	Date 15.07.1975

JAPAN ENGINEERING CONSULTANTS CO., LTD.

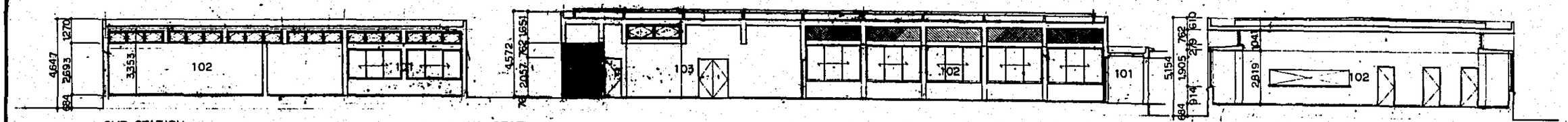


ROOM NUMBER	ROOM
5 - 101	CORRIDOR
5 - 102	DINING ROOM
5 - 103	KITCHEN
5 - 104	TOILET
5 - 105	LADIES TOILET
5 - 106	STORE ROOM
5 - 107	REFRIGERATOR ROOM
5 - 108	STAFF ROOM
5 - 109	TOILET
5 - 110	UTILITY

6 - 101	TECHNICIAN ROOM
6 - 102	SUB STATION

SUB STATION GROUND FLOOR PLAN S 1/100

DINING ROOM GROUND FLOOR PLAN S 1/100

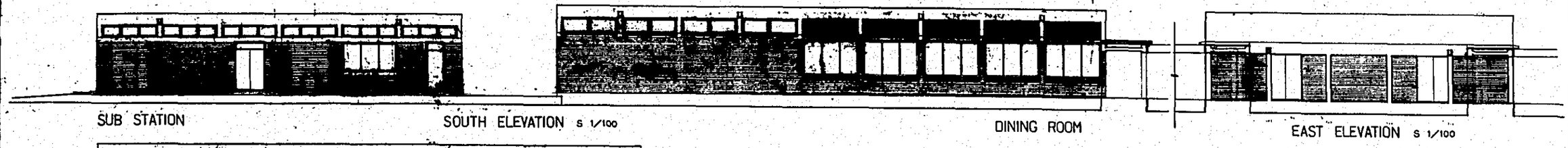


SUB STATION

X-X SECTION S 1/100

DINING ROOM

Y-Y SECTION S 1/100

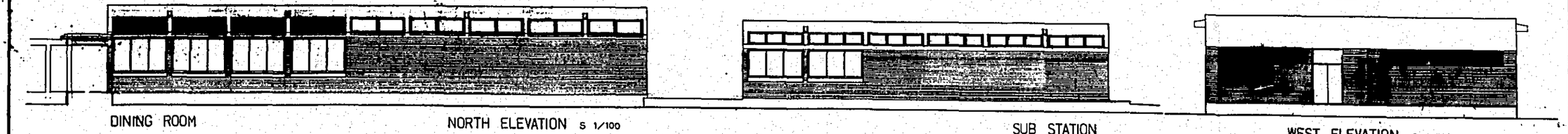


SUB STATION

SOUTH ELEVATION S 1/100

DINING ROOM

EAST ELEVATION S 1/100



DINING ROOM

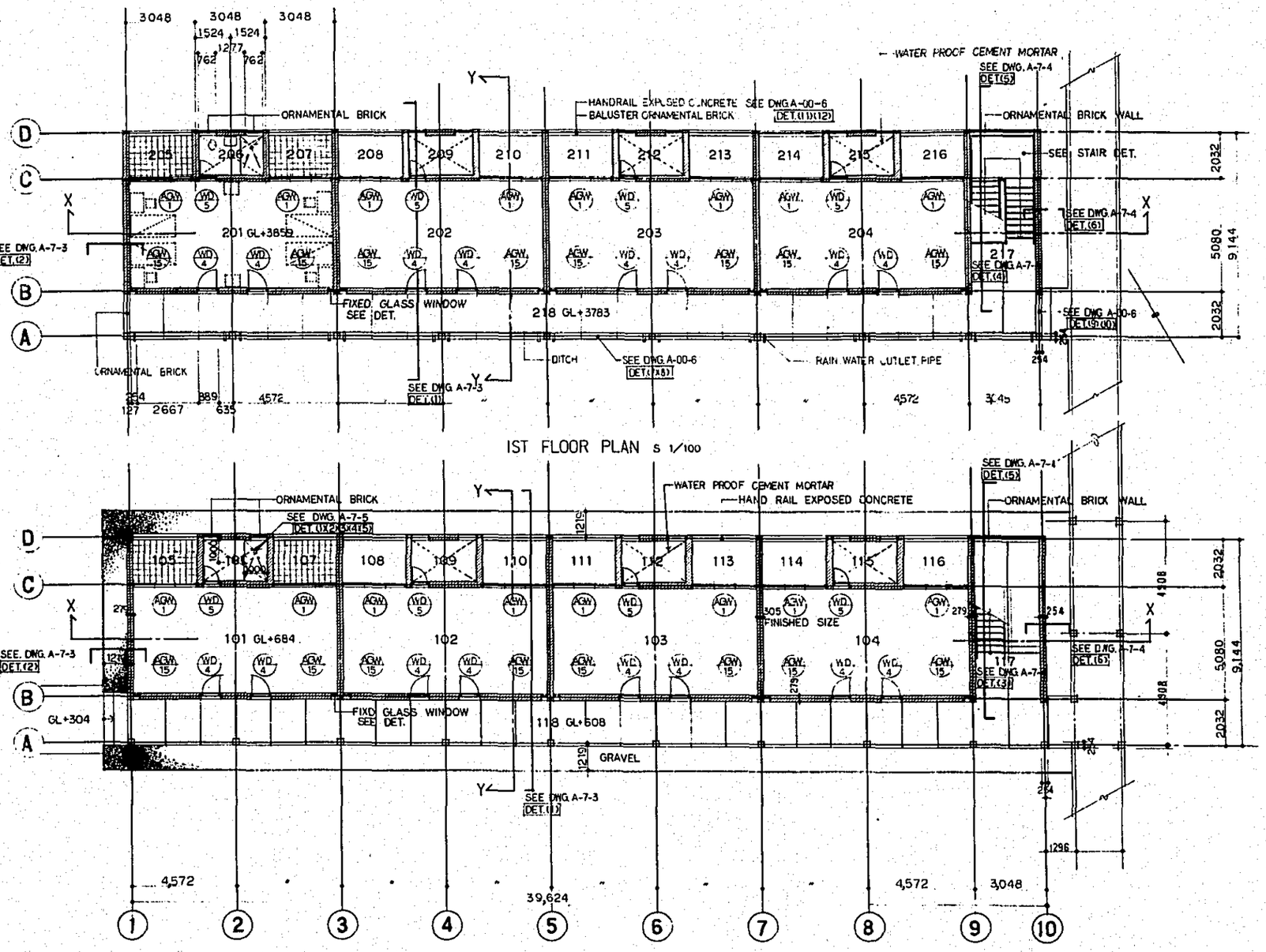
NORTH ELEVATION S 1/100

SUB STATION

WEST ELEVATION S 1/100

Project: CENTRAL WATER RESOURCES DEVELOPMENT INSTITUTE	No. A-5,6-1
DINING ROOM, SUB-STATION GROUND FLOOR PLAN, ELEVATION, SECTION	Scale 1:100
JAPAN INTERNATIONAL CO-OPERATION AGENCY	Date 15.07.1975

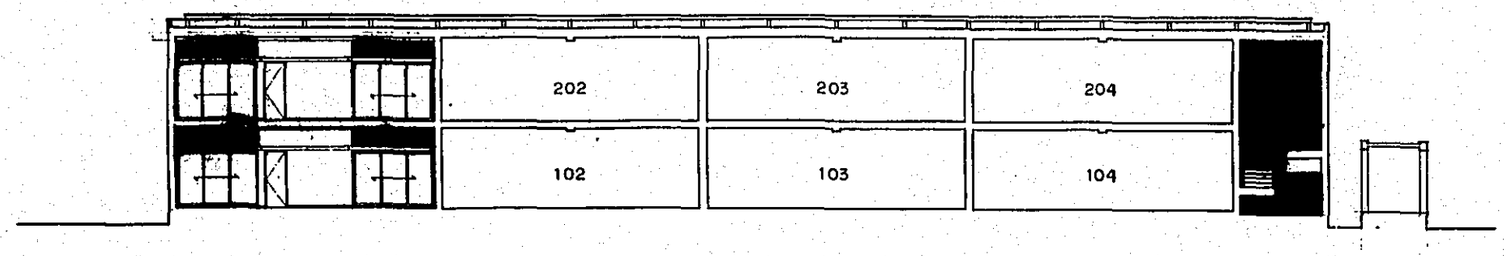
JAPAN ENGINEERING CONSULTANTS CO., LTD.



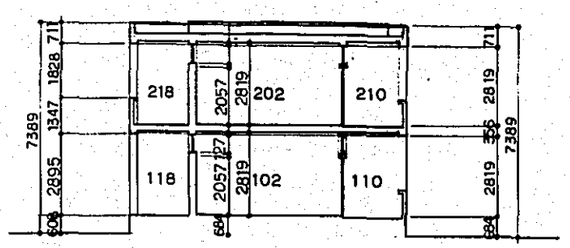
GROUND FLOOR PLAN S 1/100

ROOM NUMBER		ROOM
7-101	7-201	BED ROOM FOR FOUR PERSONS
-102	-202	〃
-103	-203	〃
-104	-204	〃
-105	-205	BALCONY
-106	-206	BATH ROOM
-107	-207	BALCONY
-108	-208	〃
-109	-209	BATH ROOM
-110	-210	BALCONY
-111	-211	〃
-112	-212	BATH ROOM
-113	-213	BALCONY
-114	-214	〃
-115	-215	BATH ROOM
-116	-216	BALCONY
-117	-217	STAIRCASE
-118	-218	CORRIDOR

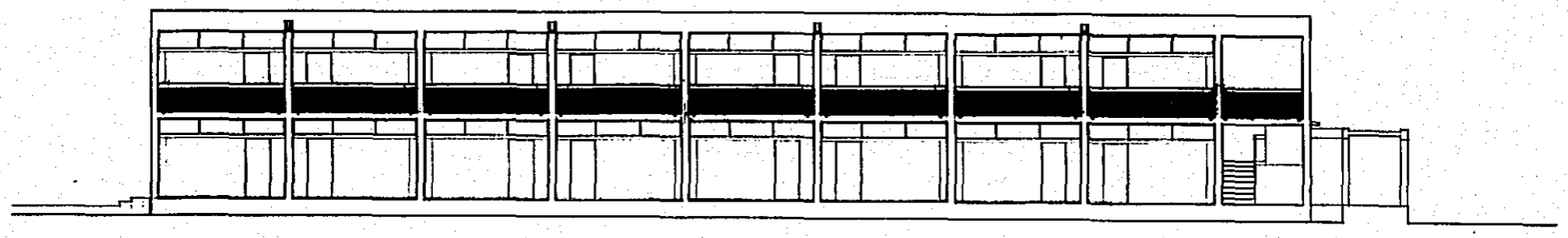
Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE
HOSTEL (1)
GROUND FLOOR PLAN, FIRST FLOOR PLAN
No. A-7-1
Scale 1:100
Date 15.07.1975
JAPAN INTERNATIONAL CO-OPERATION AGENCY
D.S.
JAPAN ENGINEERING CONSULTANTS CO., LTD.



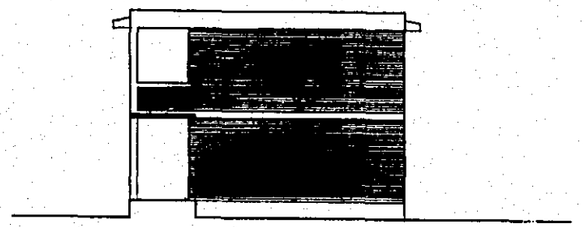
X-X' SECTION S 1/100



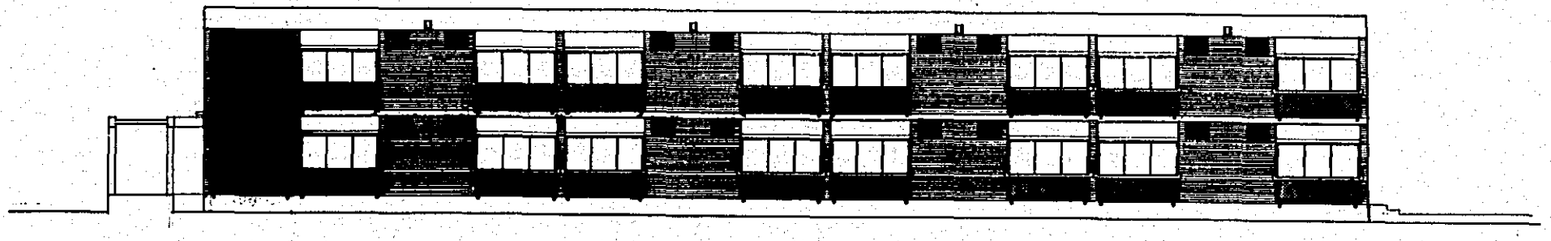
Y-Y' SECTION S 1/100



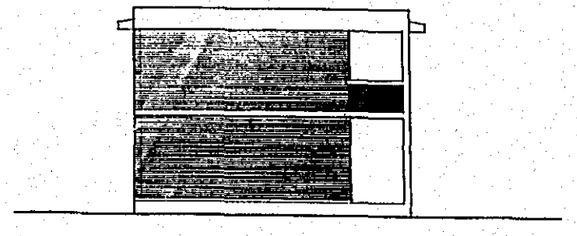
SOUTH ELEVATION S 1/100



EAST ELEVATION S 1/100

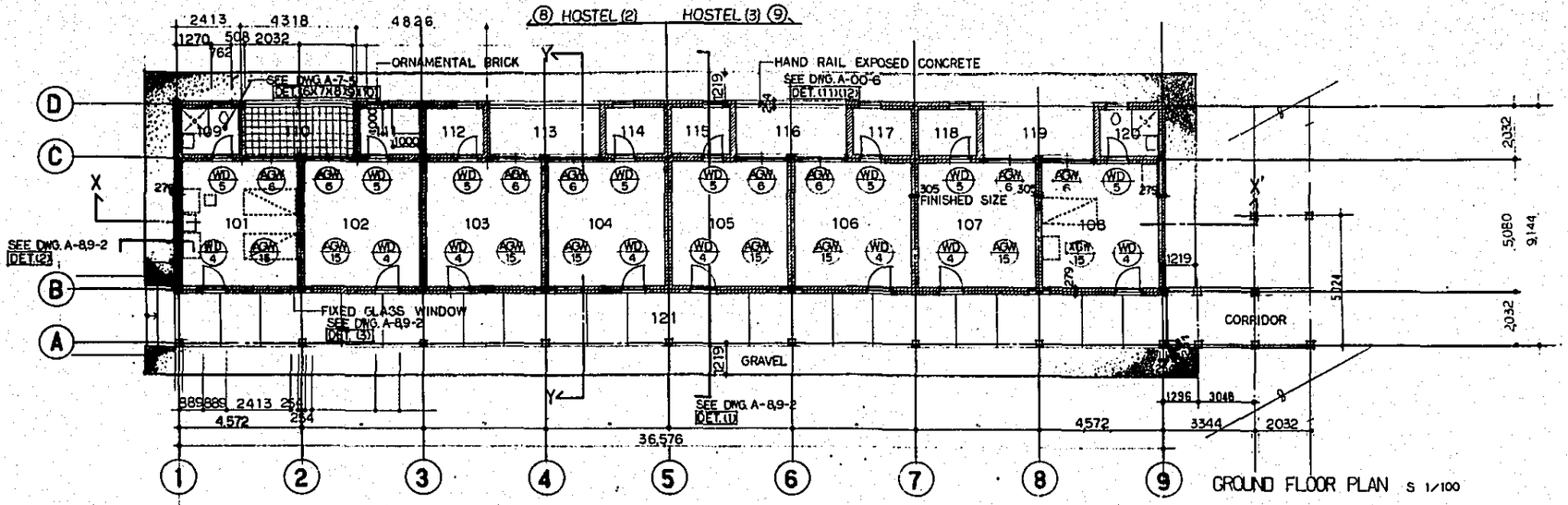


NORTH ELEVATION S 1/100



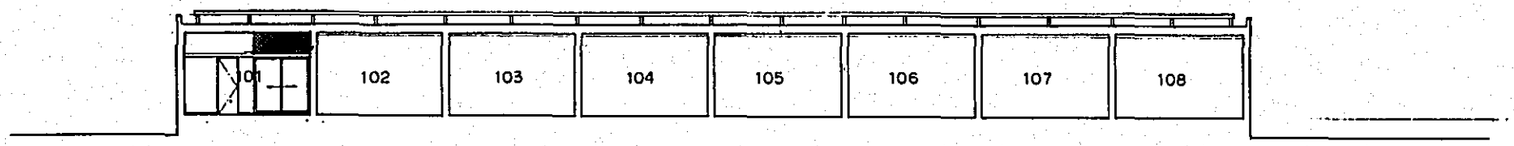
WEST ELEVATION S 1/100

JAPAN INTERNATIONAL CO-OPERATION AGENCY	CENTRAL MINDANAO RESOURCES DEVELOPMENT INSTITUTE	No. A-7-2
	HOSTEL (I) ELEVATION, SECTION	Scale 1:100
	D.S.	Date 15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD	

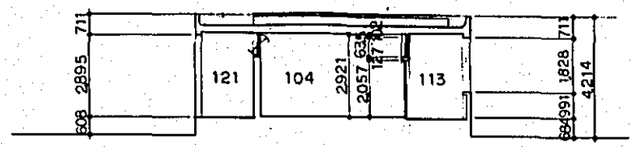


ROOM NUMBER		ROOM
8-101	9-101	BED ROOM FOR TWO PERSONS (ONE PERSON)
8-102	9-102	〃 〃 〃
8-103	9-103	〃 〃 〃
8-104	9-104	〃 〃 〃
8-105	9-105	〃 〃 〃
8-106	9-106	〃 〃 〃
8-107	9-107	〃 〃 〃
8-108		PEON ROOM (ONE PERSON)
	9-108	BED ROOM FOR ONE PERSON
8-109	9-109	BATH ROOM
8-110	9-110	BALCONY
8-111	9-111	BATH ROOM
8-112	9-112	〃
8-113	9-113	BALCONY
8-114	9-114	BATH ROOM
8-115	9-115	〃
8-116	9-116	BALCONY
8-117	9-117	BATH ROOM
8-118	9-118	〃
8-119	9-119	BALCONY
8-120	9-120	BATH ROOM
8-121	9-121	CORRIDOR

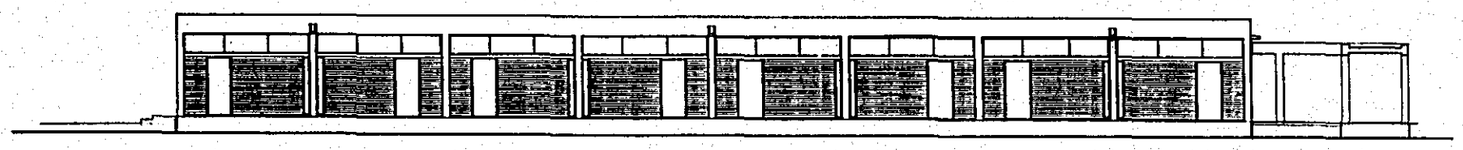
REMARK; BED ROOM IN HOSTEL (2) IS FOR TWO PERSONS.
〃 〃 〃 HOSTEL (3) 〃 〃 ONE PERSON.



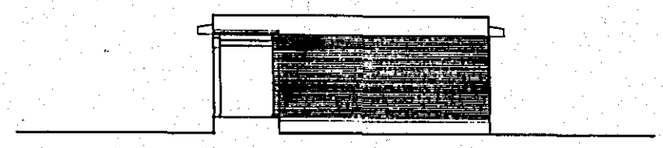
X-X' SECTION S 1/100



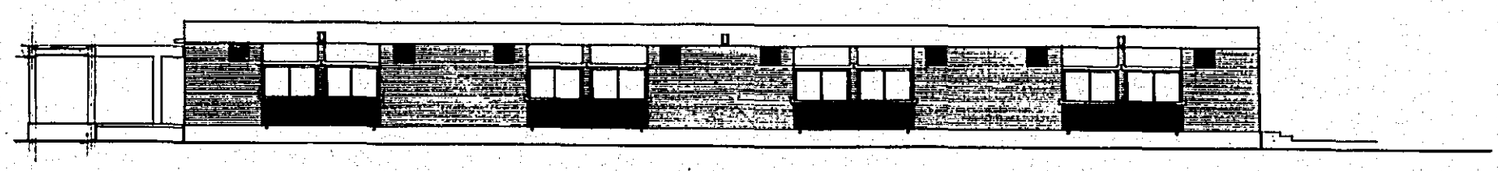
Y-Y' SECTION S 1/100



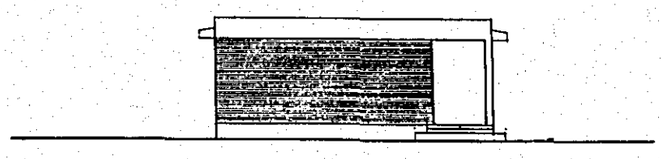
SOUTH ELEVATION S 1/100



EAST ELEVATION S 1/100

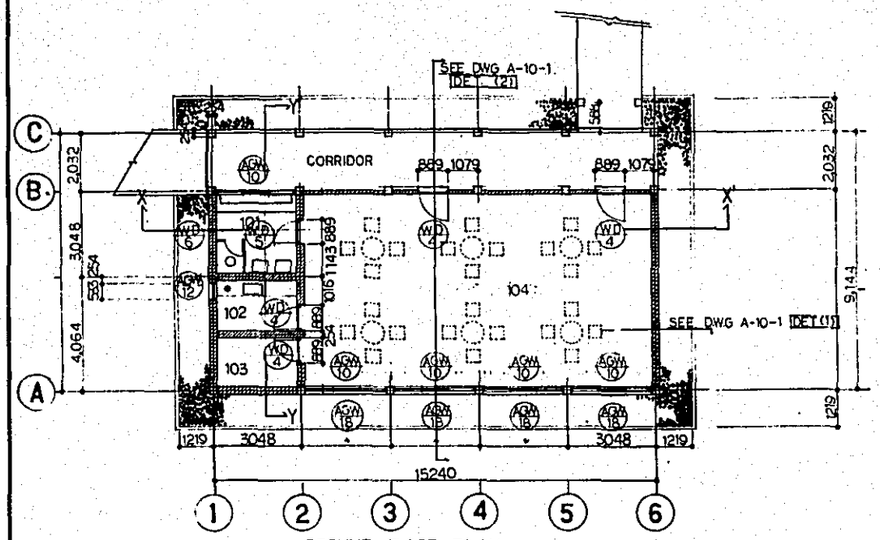


NORTH ELEVATION S 1/100



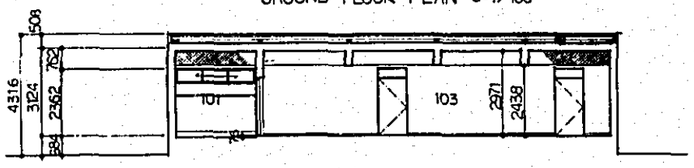
WEST ELEVATION S 1/100

JAPAN INTERNATIONAL CO-OPERATION AGENCY	Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	No. A-8,9-1
	HOSTEL (2), (3) GROUND FLOOR PLAN, ELEVATION, SECTION	Scale 1:100
		Date 15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	

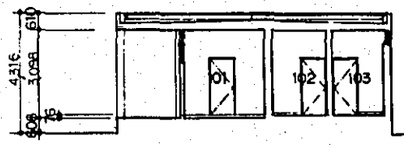


GROUND FLOOR PLAN S=1/100

ROOM NUMBER	ROOM
10-101	TOILET
〃-102	KETTLE ROOM
〃-103	STORE ROOM
〃-104	COMMON ROOM

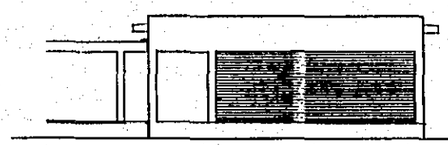


X-X' SECTION S=1/100



Y-Y' SECTION S=1/100

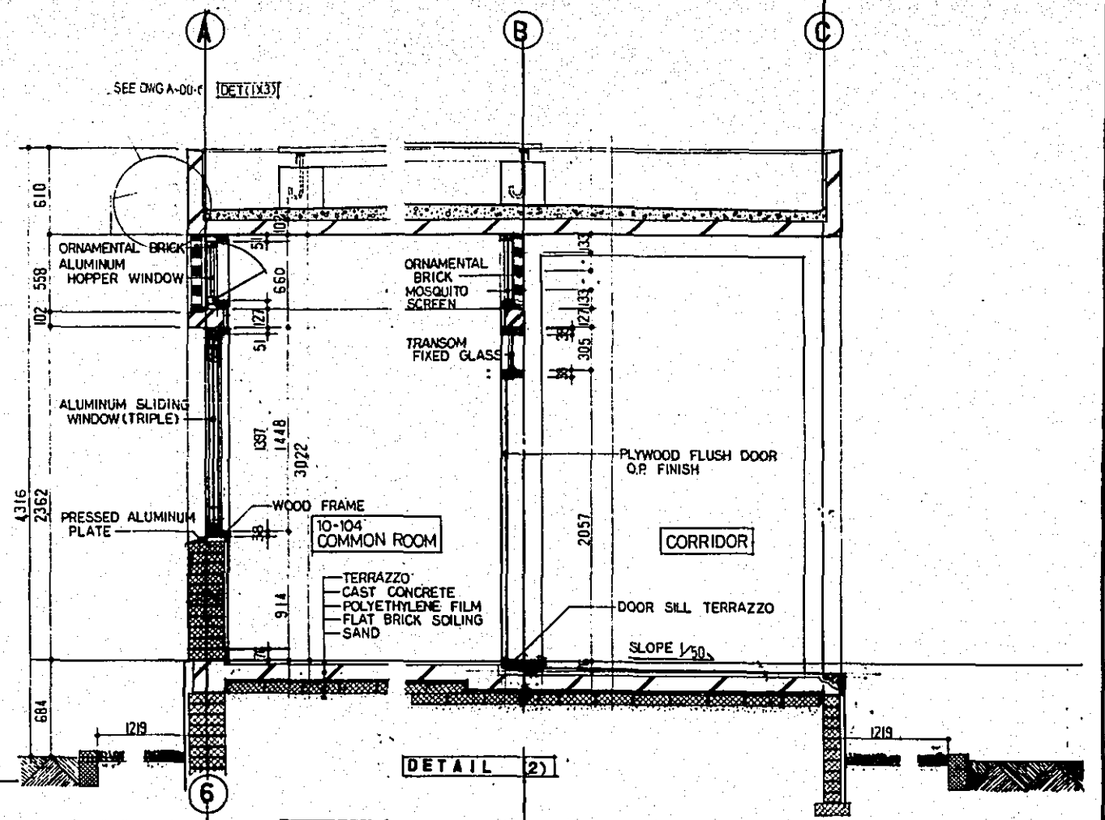
EAST ELEVATION S=1/100



WEST ELEVATION S=1/100

NORTH ELEVATION S=1/100

SOUTH ELEVATION S=1/100



Project	CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE
	COMMON ROOM
	GROUND FLOOR PLAN, ELEVATION, SECTION, SECTION DETAIL
No.	A-10-1
Scale	1:100, 1:20
Date	15.07.1975
JAPAN INTERNATIONAL CO-OPERATION AGENCY	JAPAN ENGINEERING CONSULTANTS CO., LTD.

ROOM NUMBER	ROOM		
11-101	MACHINE STORE	11-102	APRON

GRAVEL
ROOF LINE
CONCRETE SHELF
UPPER CLANE(CAPACITY 25TON)
SLOPE 1/100
GUIDE RAIL
STEEL COLUMN
LIGHT WEIGHT STEEL SHUTTER
SLOPE 1/100
ROOF LINE
DRAINAGE DITCH WITHOUT COVER
SLOPE
SLOPE
DRAINAGE DITCH WITH IRON GRID COVER SEE DET.
SEE DWG.A-11-2 DET.(1)
7366
73660
7366
900
900

Y-Y' SECTION S:1/100

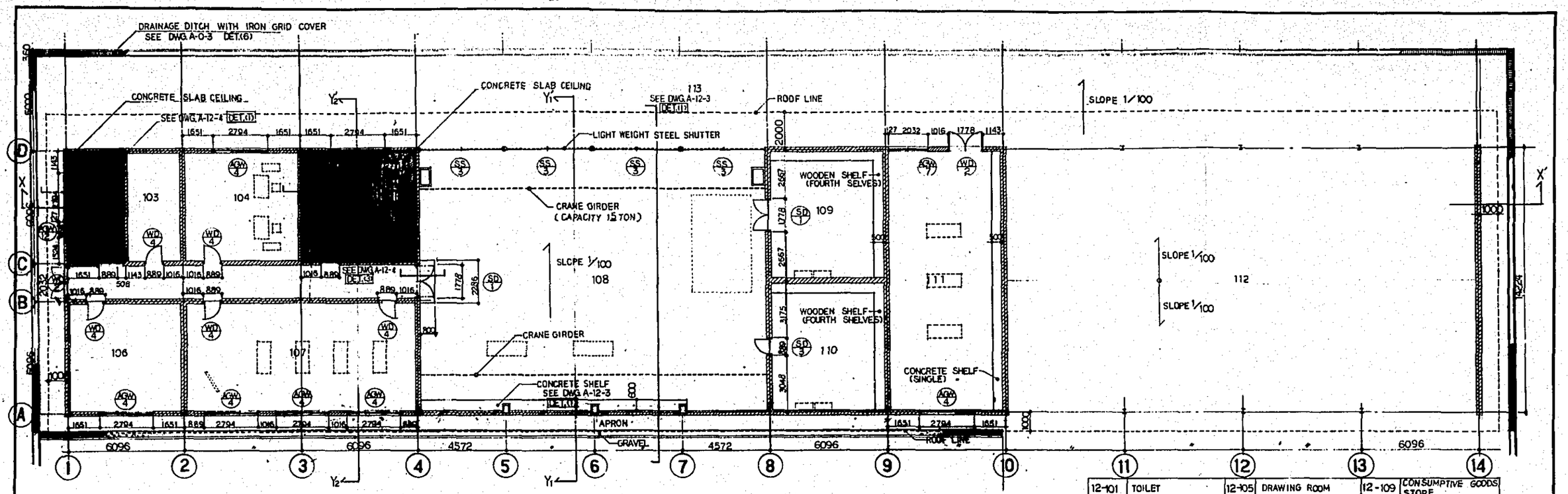
NORTH ELEVATION S:1/100

SOUTH ELEVATION S:1/100

WEST ELEVATION S:1/100

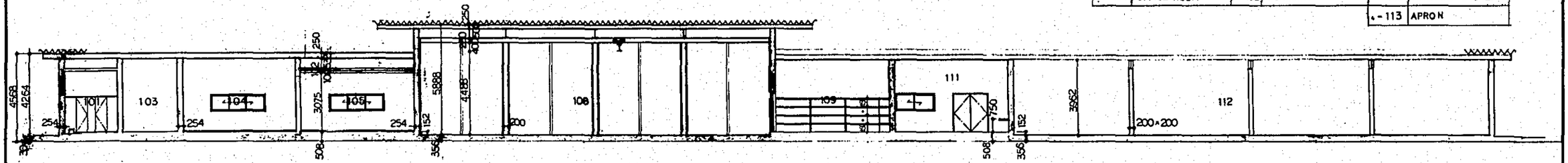
EAST ELEVATION S:1/100

PROJECT	CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	A-11-1
	MACHINE STORE GROUND FLOOR PLAN, ELEVATION, SECTION	1:100
JAPAN INTERNATIONAL CO-OPERATION AGENCY	D.S.	15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	



GROUND FLOOR PLAN S:1/100

12-101	TOILET	12-105	DRAWING ROOM	12-109	CONSUMPTIVE GOODS STORE
〃-102	KETTLE ROOM	〃-106	MACHINE OPERATER ROOM	〃-110	PARTS STORE
〃-103	STORE ROOM	〃-107	CLASS ROOM	〃-111	MACHINE-TOOL WORKSHOP
〃-104	OFFICE ROOM	〃-108	WORKSHOP	〃-112	MACHINE STORE.
				〃-113	APRON



X-X' SECTION S:1/100

WEST ELEVATION S:1/100

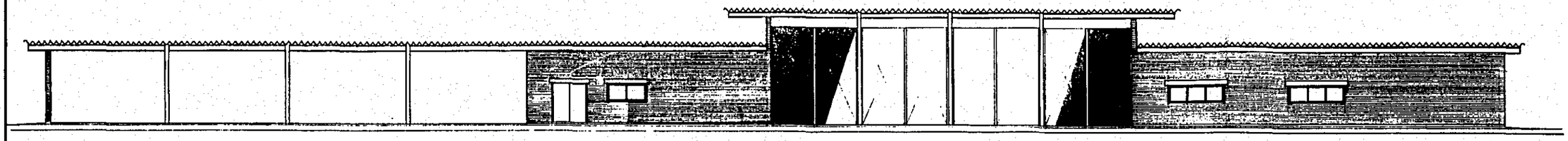
CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE
MACHINERY WORKSHOP & MACHINE STORE
GROUN FLOOR PLAN, ELEVATION, SECTION

No. A-12-1
Scale 1:100
Date 15.07.1975

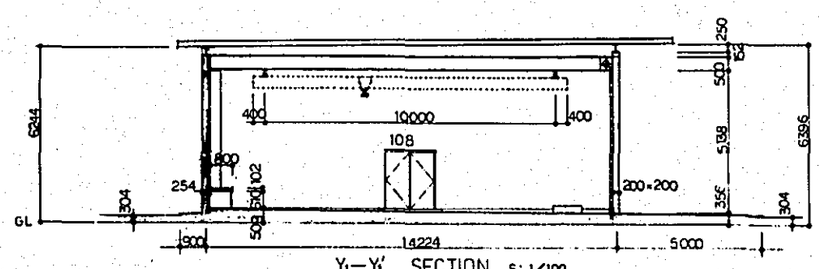
JAPAN INTERNATIONAL CO-OPERATION AGENCY

R.S.

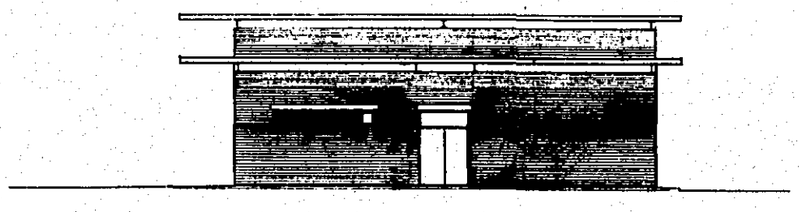
JAPAN ENGINEERING CONSULTANTS CO., LTD.



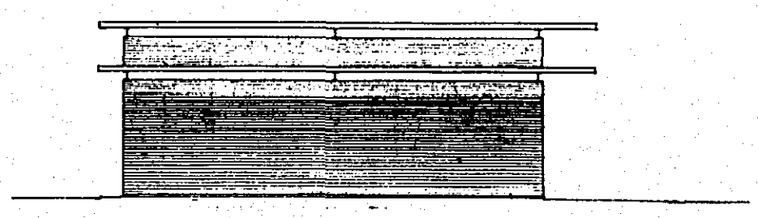
EAST ELEVATION S: 1/100



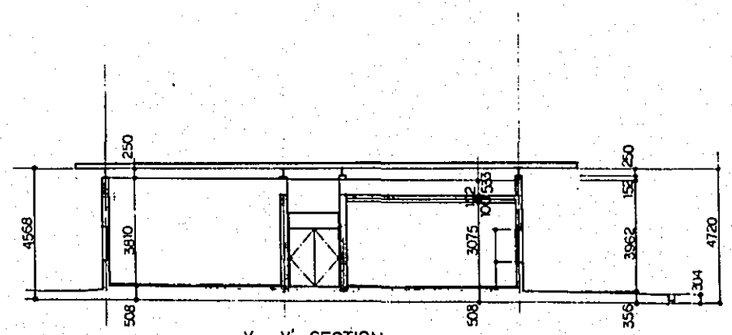
Y1—Y1' SECTION S: 1/100



NORTH ELEVATION S: 1/100

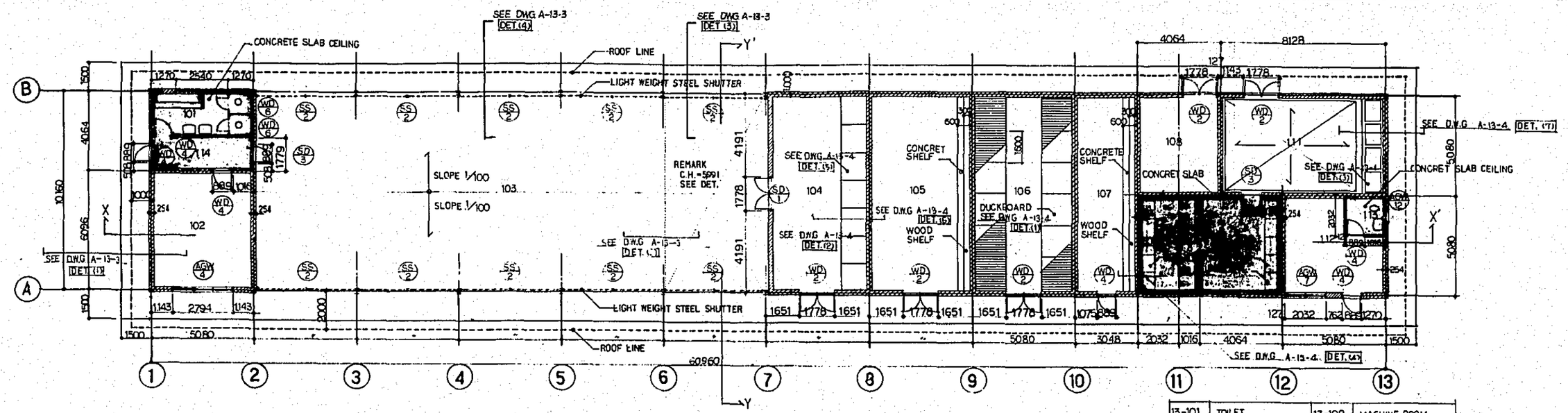


SOUTH ELEVATION S: 1/100



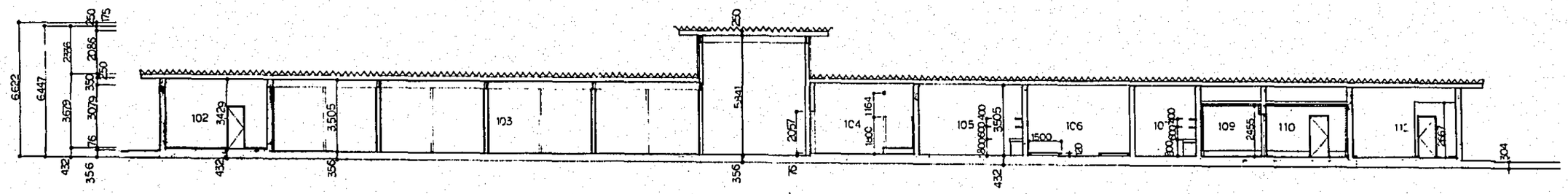
Y2—Y2' SECTION S: 1/100

	CENTRAL EXTENSION OF FORCES DEVELOPMENT INSTITUTE	A-12-2
	MACHINERY WORKSHOP & MACHINE STORE	
	ELEVATION, SECTION	1:100
JAPAN INTERNATIONAL CO-OPERATION AGENCY	D.S.	DATE 15.07.1975
	JAPAN [illegible] CONSULTANTS CO., LTD.	

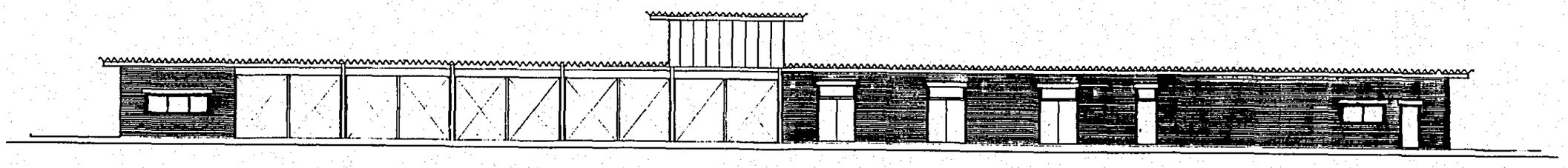


GROUND FLOOR PLAN S:1/100

13-101	TOILET	13-108	MACHINE ROOM
·-102	WORKER ROOM	·-109	SEED STORE
·-103	THRASHING & PROCESSING AREA	·-110	,
·-104	STORE ROOM	·-111	SEED SELECTION ROOM
·-105	TOOL STORE	·-112	OFFICE ROOM
·-106	FERTILIZER STORE	·-113	TOILET
·-107	AGRICULTURE CHEMICAL STORE	·-114	CORRIDOR

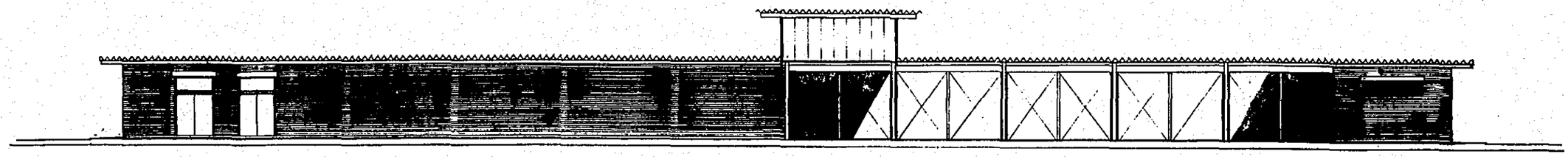


X-X' SECTION S:1/100

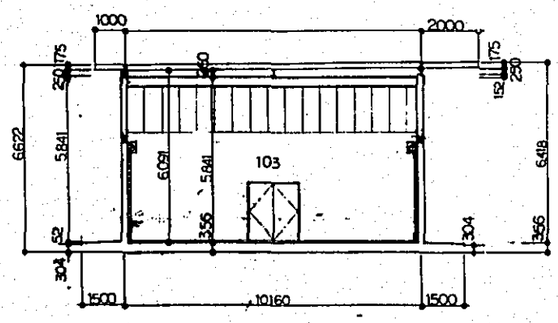


SOUTH ELEVATION S:1/100

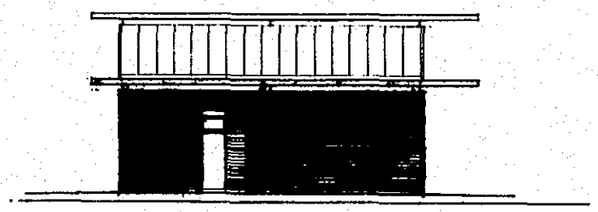
	No. A-13-1
FIELD MANAGEMENT BUILDING GROUND FLOOR PLAN, ELEVATION, SECTION	S. 1:100
JAPAN INTERNATIONAL CO-OPERATION AGENCY	D.S. 15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.



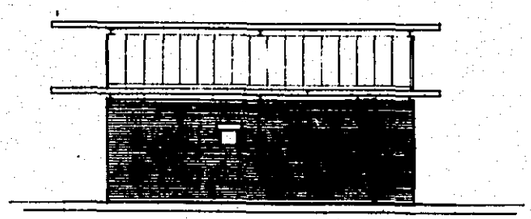
NORTH ELEVATION . S: 1/100



Y–Y' SECTION S: 1/100

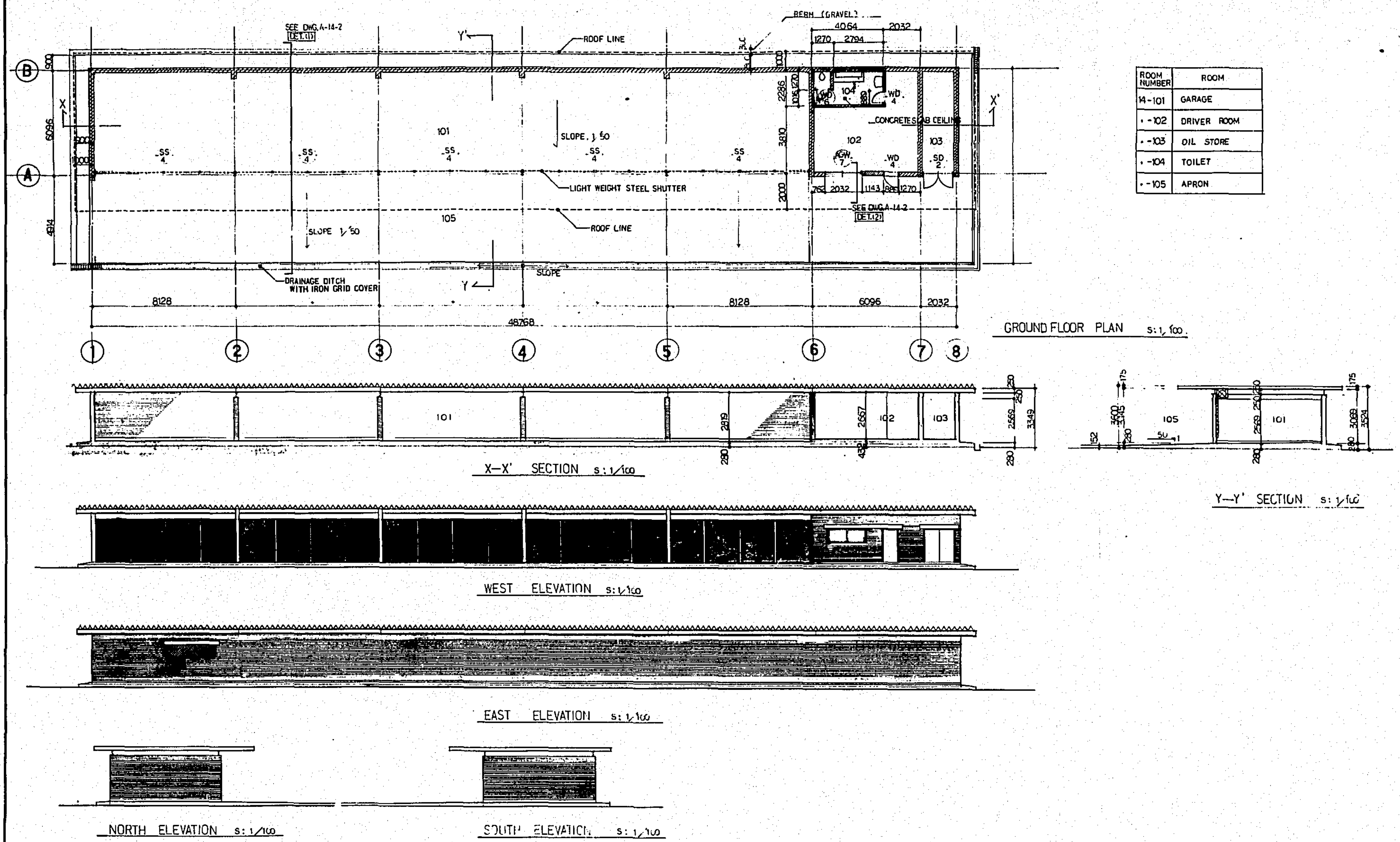


WEST ELEVATION S: 1/100



EAST ELEVATION S: 1/100

	CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE	No. A-13-2
	FIELD MANAGEMENT BUILDING ELEVATION, SECTION	Scale 1:100
JAPAN INTERNATIONAL CO-OPERATION AGENCY	D.S.	Date 15.07.1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	



ROOM NUMBER	ROOM
14-101	GARAGE
" -102	DRIVER ROOM
" -103	OIL STORE
" -104	TOILET
" -105	APRON

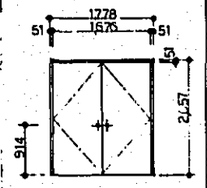
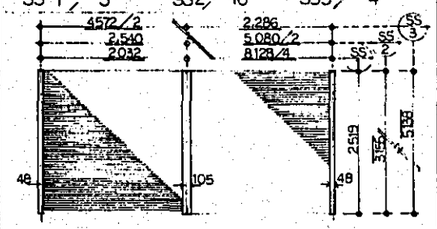
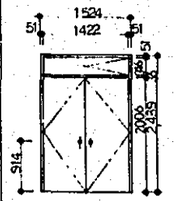
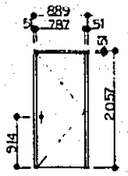
JAPAN INTERNATIONAL CO-OPERATION AGENCY

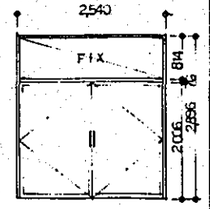
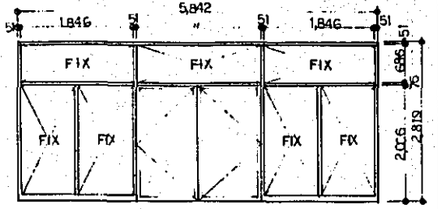
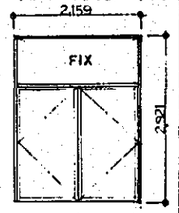
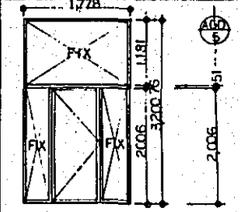
CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE — A-14-1

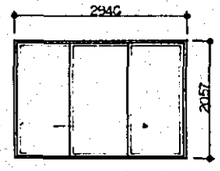
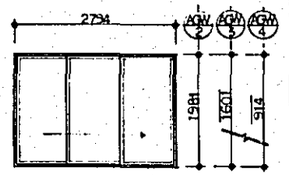
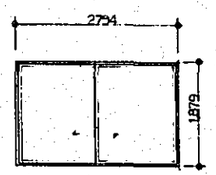
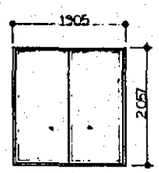
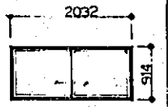
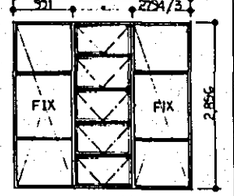
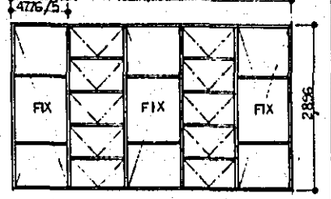
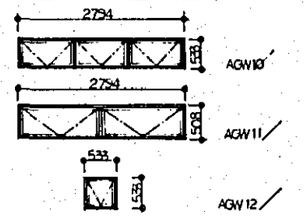
GARAGE
GROUND FLOOR PLAN, ELEVATION, SECTION — 1:100

15.07.1975

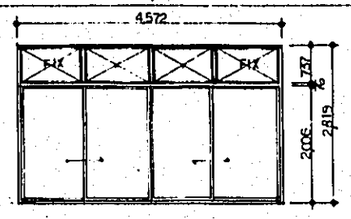
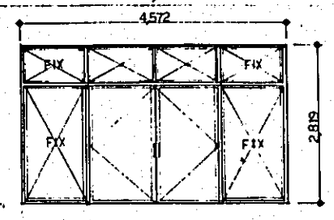
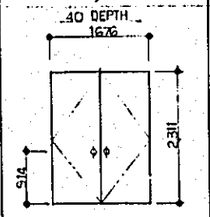
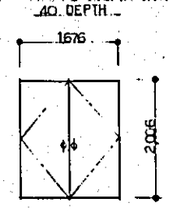
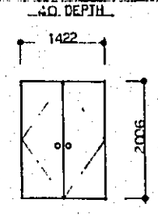
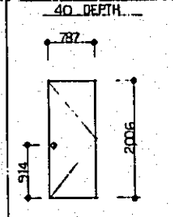
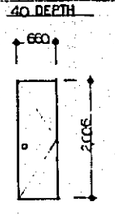
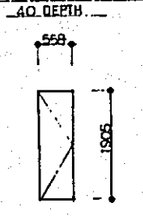
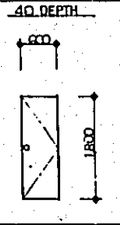
JAPAN ENGINEERING CONSULTANTS CO., LTD.

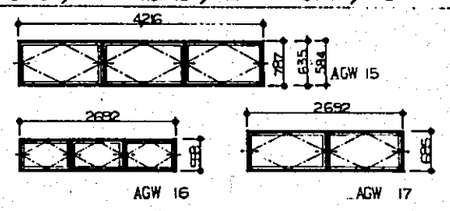
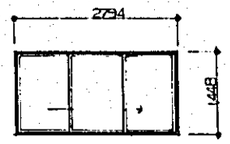
SIGN / TOTAL	SD 1 / 4	SS 1 / 5	SS2 / 10	SS3 / 4	SD 2 / 2	SD 3 / 6
ELEVATION						
METHOD	STEEL FLUSH DOOR OIL PAINT FINISH . STEEL 1.6 THICK	LIGHT WEIGHT STEEL SHUTTER OIL PAINT FINISH			STEEL FLUSH DOOR OIL PAINT FINISH STEEL 1.6 THICK	
METAL FITTINGS	3 STENLESS HINGES WITH CYLINDER LOCK SET, THUMBTURN. STENLESS KNOB	WITH GUIDE RAIL. CYLINDER LOCK SET POSTS			WITH 3 STENLESS HINGES CYLINDER LOCK SET. THUMBTURN STENLESS KNOB	
REMARKS	DOOR CHECK				DOOR CHECK	
1 MAIN BUILDING (1)						
2 MAIN BUILDING (2)						
3 A.V.+ CR BUILDING						
4 ASSEMBLY HALL						
5 DINING ROOM						
6 SUB STATION						
7 HOSTEL (1)						
8 " (2)						
9 " (3)						
10 COMMON ROOM						
11 MACHINE STORE						
12 MW+MACHINE STORE	②	7366/5 H=3434 SS4/10				
13 FIELDMANAGEMENT	①	SS 3 / 4				
14 GARAGE	①	SS 2 / 10				
		SS 1 / 5				

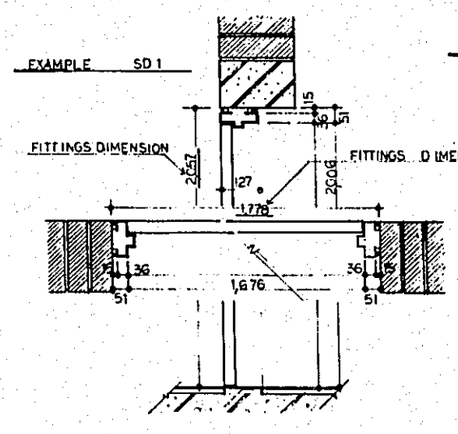
SIGN / TOTAL	AGD 1 / 1	AGD 2 / 1	AGD 3 / 2	AGD 4 / 4	AGD 5 / 1
ELEVATION					
METHOD	UPPER FIX GLASS GLASS 5 THICK ALUMINUM GLASS DOOR GLASS 5 THICK				
METAL FITTINGS	STENLESS DOOR PULL 2 FLUSH BOLTS				
REMARKS	DOOR CHECK				
1 MAIN BUILDING (1)	①	①			
2 MAIN BUILDING (2)			②		
3 A.V.+ CR BUILDING					
4 ASSEMBLY HALL				AGD4 / 4	AGD5 / 1
5 DINING ROOM					
6 SUB STATION					
7 HOSTEL (1)					
8 " (2)					
9 " (3)					
10 COMMON ROOM					
11 MACHINE STORE					
12 MW+MACHINE STORE					
13 FIELDMANAGEMENT					
14 GARAGE					

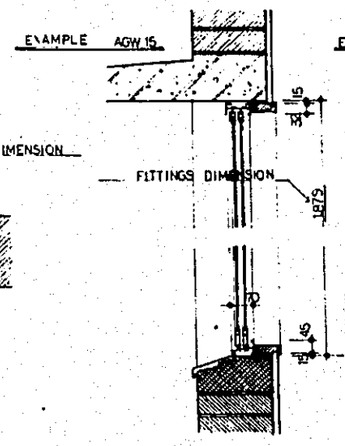
SIGN / TOTAL	AGW 1 / 16	AGW2 / 12	AGW3 / 11	AGW4 / 14	AGW 5 / 76	AGW 6 / 8	AGW 7 / 3	AGW 8 / 7	AGW 9 / 2	AGW 10 / 26	AGW 11 / 87	AGW 12 / 2
ELEVATION												
METHOD	ALUMINUM SLIDING GLASS WINDOW GLASS 5 THICK						GLASS 5 THICK	ALUMINUM HOPPED GLASS WINDOW GLASS 5 THICK		GLASS 5 THICK		
METAL FITTINGS	SASH LIFTS							FIX GLASS 5 THICK RATCH TOP RATCH STAY DAMPER BALL CHAINE OPERATOR				
REMARKS	WITH MOSQUITO SCREEN											
1 MAIN BUILDING (1)												
2 MAIN BUILDING (2)												
3 A.V.+ CR BUILDING		AGW3/8	AGW4/5									
4 ASSEMBLY HALL												
5 DINING ROOM		AGW2/10	AGW3/3									
6 SUB STATION		AGW2/2										
7 HOSTEL (1)	⑯											
8 " (2)												
9 " (3)												
10 COMMON ROOM												
11 MACHINE STORE												
12 MW+MACHINE STORE		AGW4/7										
13 FIELDMANAGEMENT		AGW4/1										
14 GARAGE		AGW4/1										

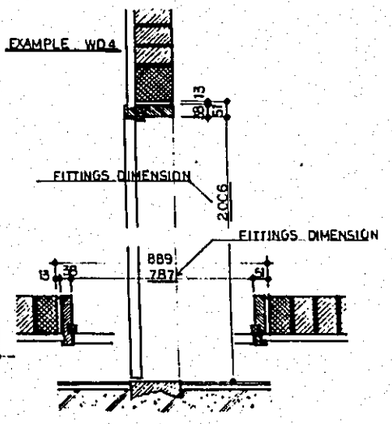
JAPAN INTERNATIONAL CO-OPERATION AGENCY	CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE		A-00-1
	SCHEDULE OF DOOR, WINDOW AND SHUTTER.		Scale 1:50
		D.S.	D.M. 15.07.1975
	JAPAN CONSULTANTS CO., LTD.		

SIGN / TOTAL	AGW 13 / 7	AGW 14 / 1	WD 1 / 2	WD 2 / 13	WD 3 / 2	WD 4 / 104	WD 5 / 34	WD 6 / 26	WD 7 / 6
ELEVATION									
METHOD	ALUMINUM SLIDING GLASS WINDOW GLASS 6 THICK UPPER FIX GLASS 5 THICK	ALUMINUM SWING GLASS DOOR GLASS 6 THICK UPPER FIX GLASS	PLYWOOD FLUSH DOOR OIL PAINT FINISH PLYWOOD 5.5 THICK					PLYWOOD FLUSH DOOR OIL PAINT FINISH PLYWOOD 5.5 THICK	
METAL FITTINGS	SASH LIFTS	FLOOR HINGE CYLINDER 2 FLUSH BOLTS STEMLESS DOOR PULL	3 STENLESS HINGES STENLESS KNOB	CYLINDER LOCK SET THUMB TURN				LABATORY HINGES	3 STENLESS HINGES CYLINDER LOCK SET THUMB TURN STENLESS KNOB
REMARKS	MOSQUITO SCREEN		DOOR HOOKS AND STOPS						DOOR HOOKS AND STOPS
1 MAIN BUILDING (1)						(27) (22) (4)	(8) (9)	(9) (8)	
2 " (2)				(6)					(2)
3 A.V.& CR BUILDING						(5)	(1)	(3)	
4 ASSENBLY HALL	(7)	(1)	(2)		(2)	(1) (16)	(8) (8)		
5 DINING ROOM						(8)			
6 SUB STATION						(5)		(1)	
7 HOSTEL (1)				(2) (5)		(8) (6) (2)		(2) (2) (1)	(3) (1)
8 " (2)									
9 " (3)									
10 COMMON ROOM									
11 MACHINE STORE									
12 M.W.& MACHINE STORE									
13 FIELD MANAGEMENT									
14 GARAGE									

SIGN / TOTAL	AGW 15 / 32 AGW 16 / 12 AGW 17 / 8	AGW 18 / 4
ELEVATION	 AGW 15 AGW 16 AGW 17	
METHOD	HORISONTAL PIVOTED GLASS WINDOW GLASS 6 THICK	ALUMINUM SLIDING GLASS WINDOW GLASS 6 THICK
METAL FITTINGS	HINGES LATCH BALL CHAIN	SASH LIFTS
REMARKS	OPERATOR	MOSQUITO SCREEN
1 MAIN BUILDING (1)	AGW 17 / 8	
2 " (2)	AGW 16 / 12	
3 A.V.& CR BUILDING	AGW 15 / 16 (GROUND FLOOR 635, 1ST FLOOR 584)	
4 ASSENBLY HALL	AGW 15 / 8	
5 DINING ROOM	AGW 15 / 8	
6 SUB STATION		
7 HOSTEL (1)		
8 " (2)		
9 " (3)		AGW 18 / 4
10 COMMON ROOM		
11 MACHINE STORE		
12 M.W.& MACHINE STORE		
13 FIELD MANAGEMENT		
14 GARAGE		







JAPAN INTERNATIONAL CO-OPERATION AGENCY	CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE SCHEDULE OF DOOR, WINDOW AND SHUTTER	A-00-2 1 : 50
	D. S.	15. 07. 1975
	JAPAN ENGINEERING CONSULTANTS CO., LTD.	

ROOM NUMBER	ROOM
MAIN BUILDING (1)	
GROUND FLOOR	
1 — 101	TELEPHONE EXCHANGE R.
1 — 102	FIRSTAID ROOM
1 — 103	MEETING ROOM
1 — 104	DY. DIRECTOR OFFICE
1 — 105	ENTRANCE HALL
1 — 106	RECEPTIONIST CORNER
1 — 107	STAIR HALL
1 — 108	ASSISTANT CLERK OFFICE
1 — 109	OFFICE ROOM
1 — 110	TOILET
1 — 111	KETTLE ROOM
1 — 112	PEON ROOM
1 — 113	LADIES TOILET
1 — 114	TYPIST OFFICE
1 — 115	PRESS WORK SHOP
1 — 116	STAIR CASE
1 — 117	CORRIDOR
1ST FLOOR	
1 — 201	ASSOCIATE DIREC O.
1 — 202	TOILET
1 — 203	SECRETARIAT OFFICE
1 — 204	DERECTOR OFFICE
1 — 205	GUEST ROOM
1 — 206	OPEN SPACE ABOVE
1 — 207	STAIR HALL
1 — 208	BOOK STORE
1 — 209	READING ROOM
1 — 210	TOILET
1 — 211	KETTLE ROOM
1 — 212	PRINCIPAL INF OFFICE
1 — 213	INFORMATION OFFICE
1 — 214	TYPIST OFFICE
1 — 215	STAIR CASE
1 — 216	CORRIDOR
MAIN BUILDING (2)	
GROUND FLOOR	
2 — 101	EXPERIMENT CLASS R.
2 — 102	HORTICULTURE LABO.
2 — 103	HORTICULTURE SPECIALIST O.
2 — 104	EXTENSION SPECIALIST O.
2 — 105	HALL
2 — 106	AGRONOMY LABORATORY
2 — 107	AGRONOMIST OFFICE
2 — 108	PRINCIPAL AGRONOMIST O.
2 — 109	TOILET
2 — 110	KETTLE ROOM
2 — 111	DARK ROOM
2 — 112	LADIES TOILET
2 — 113	EQUIPMENT STORE
2 — 114	FARM MANAGEMENT SPEC.
2 — 115	TYPIST OFFICE
2 — 116	STAIR CASE
2 — 117	CORRIDOR
1ST FLOOR	
2 — 201	ASSAY ROOM
2 — 202	SOIL FERTILIZER
2 — 203	SOIL FERTILIZER SPE. O.
2 — 204	CHEMICAL STORE
2 — 205	ASEPTIC CULTURE ROOM
2 — 206	HALL
2 — 207	PLANT PROTECTION LABO.
2 — 208	PLANT PROTECTION SPE. O.
2 — 209	MEETING ROOM
2 — 210	TOILET
2 — 211	KETTLE ROOM
2 — 212	TOILET
2 — 213	KETTLE ROOM
2 — 214	SHOWER ROOM
2 — 215	ADVISOR ROOM
2 — 216	MEETING ROOM
2 — 217	STAIR CACE
2 — 218	CORRIDOR
AUDIO-VISUAL AND CLASS-ROOM BUILDING (3)	
GROUND FLOOR	
3 — 101	STORE ROOM
3 — 102	TOILET
3 — 103	CLASS ROOM
3 — 104	CLASS ROOM
3 — 105	WORKSHOP
3 — 106	OPERATION ROOM
3 — 107	AUDIO VISUAL ROOM
3 — 108	CORRIDOR
ASSEMBLY HALL (4)	
GROUND FLOOR	
4 — 101	PORCH
4 — 102	ENTRANCE
4 — 103	ASSEMBLY HALL
4 — 104	WAITING ROOM
4 — 105	STORE ROOM
4 — 106	TOILET
4 — 107	FRONT
4 — 108	CORRIDOR
DINING ROOM (5)	
GROUND FLOOR	
5 — 101	CORRIDOR
5 — 102	DINING ROOM
5 — 103	KITCHEN
5 — 104	TOILET
5 — 105	LADIES TOILET
5 — 106	STORE ROOM
5 — 107	REFRIGERATOR
5 — 108	STAFF ROOM
5 — 109	TOILET
5 — 110	UTILTY
SUB STATION (6)	
GROUND FLOOR	
6 — 101	TECHNICIAN ROOM
6 — 102	SUB STATION
HOSTEL (1) (7)	
GROUND FLOOR	
7 — 101	BED ROOM (FOUR PERSONS)
7 — 102	DO
7 — 103	DO
7 — 104	DO
7 — 105	BALCONY
7 — 106	BATH ROOM
7 — 107	BALCONY
7 — 108	DO
7 — 109	BATH ROOM
7 — 110	BALCONY
7 — 111	DO
7 — 112	BATH ROOM
7 — 113	BALCONY
7 — 114	DO
7 — 115	BATH ROOM
7 — 116	BALCONY
7 — 117	STAIRCASE ROOM
7 — 118	CORRIDOR
1ST FLOOR	
7 — 201	BED ROOM (FOUR PERSONS)
7 — 202	DO
7 — 203	DO
7 — 204	DO
7 — 205	BALCONY
7 — 206	BATH ROOM
7 — 207	BALCONY
7 — 208	DO
7 — 209	BATH ROOM
7 — 210	BALCONY
7 — 211	DO
7 — 212	BATH ROOM
7 — 213	BALCONY
7 — 214	DO
7 — 215	BATH ROOM
7 — 216	BALCONY
7 — 217	STAIRCASE ROOM
7 — 218	CORRIDOR
HOSTEL (2) (8)	
GROUND FLOOR	
8 — 101	BED ROOM (TWO PERSONS)
8 — 102	DO
8 — 103	DO
8 — 104	DO
8 — 105	DO
8 — 106	DO
8 — 107	DO
8 — 108	PEON ROOM
8 — 109	BATH ROOM
8 — 110	BALCONY
8 — 111	BATH ROOM
8 — 112	DO
8 — 113	BALCONY
8 — 114	BATH ROOM
8 — 115	DO
8 — 116	BALCONY
8 — 117	BATH ROOM
8 — 118	DO
8 — 119	BALCONY
8 — 120	BATH ROOM
8 — 121	CORRIDOR
HOSTEL (3) (9)	
GROUND FLOOR	
9 — 101	BED ROOM (ONE PERSON)
9 — 102	DO
9 — 104	DO
9 — 105	DO
9 — 106	DO
9 — 107	BED ROOM (ONE PERSON)
9 — 108	DO
9 — 109	BATH ROOM
9 — 110	BALCONY
9 — 111	BATH ROOM
9 — 112	DO
9 — 113	BALCONY
9 — 114	BATH ROOM
9 — 115	DO
9 — 116	BALCONY
9 — 117	BATH ROOM
9 — 118	DO
9 — 119	BALCONY
9 — 120	BATH ROOM
9 — 121	CORRIDOR
COMMON ROOM (10)	
GROUND FLOOR	
10 — 101	TOILET
10 — 102	KETTLE ROOM
10 — 103	STORE ROOM
10 — 104	COMMON ROOM
10 — 105	
MACHINE STORE (11)	
GROUND FLOOR	
11 — 101	MACHINE STORE
11 — 102	APRON
MACHINERY WORK SHOP AND MACHINE STORE (12)	
GROUND FLOOR	
12 — 101	TOILET
12 — 102	KETTLE ROOM
12 — 103	STORE ROOM
12 — 104	OFFICE ROOM
12 — 105	DRAWING ROOM
12 — 106	MACHINE OPERATER ROOM
12 — 107	CLASS ROOM
12 — 108	WORK SHOP
12 — 109	CONSUMPTIVE GOODS STORE
12 — 110	SPARE STORE
12 — 111	MACHINE-TOOL WORK SHOP
12 — 112	MACHINE STORE
12 — 113	APRON
FIELD MANAGEMENT BUILDING (13)	
GROUND FLOOR	
13 — 101	TOILET
13 — 102	WORKER ROOM
13 — 103	CHRASHING PROCESSING AREA
13 — 104	STORE ROOM
13 — 105	TOOL STORE
13 — 106	FERTILIZER STORE
13 — 107	AGRICULTURE CHEMICAL STORE
13 — 108	MACHINE ROOM
13 — 109	SEED STORE
13 — 110	DO
13 — 111	SEED SELECTION ROOM
13 — 112	OFFICE ROOM
13 — 113	TOILET
13 — 114	CORRIDOR
GARAGE (14)	
GROUND FLOOR	
14 — 101	GARAG
14 — 102	DRIVER ROOM
14 — 103	OIL STORE
14 — 104	TOILET
14 — 105	APRON

ROOF	LIME CONCRETE 75t (LOWER END) SLOPE 1/50 ROOF DECK REINFORCED CONCRETE
ROOF SHADE	CORRUGATED ASBESTOS CEMENT BOARD; PURLIN ANGLE 90×75 O.P. SUPPORT PRECAST CONCRETE BLOCK 300×300×300
EXTERNAL WALL	MACHINE MADE BRICK (EXPOSED) POINTED JOINT
EXTERNAL BASE BOARD	MORTAR BLUSHING
PARAPET	EXPOSED CONCRETE
GUTTER	EXPOSED CONCRETE
ROOF DRAIN	CAST IRON ROOF DRAIN ; P.V.C. DRANAGE PIPE. 100ϕ
BERM	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W-13 GRAVEL 50t

APRON	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W-13
CORRIDOR	FLOOR TERRAZZO CEILING CONCRETE DISTEMPER
PORCH (M.B.(1))	FLOOR TERRAZZO BLOCK 360×360

REMARK

F.S.T. — FOLDED STEEL PLATE ROOF
C.B. — CONCRETE BLOCK
S.F. — STYLOFOAM
P.J. — POINTED JOINT
P.V.C. — POLYVINYL CHLORIDE
C.L. — CLEAR LACQUER
P.C. — PRECAST
E.P. — EMULSION PAINT

(1) MAIN BUILDING

	FLOOR	BASE BOARD	WAINSCOTING	WALL	CEILING	REMARKS
GROUND FLOOR						
1-101	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR DISTEMPER T=25	STYLOFOAM T=100 E.P	
1-102	DO	DO		DO	DO	
1-103	NEEDLE PUNCH CARPET (QIC)	DO		DO	DO	ALUMINUM LOUVER CEILING (LUXACLAIR)
1-104	DO	DO		DO	CONCRETE DISTEMPER	
1-105	TERRAZZO BLOCK			MACHINE MADE BRICK (EXPOSED)	CONCRETE (EXPOSED)	ALUMINUM HOPPER GLASS WINDOW
1-106	DO			DO	DO	DO
1-107	DO			DO	DO	
1-108	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR DISTEMPER T=25	CONCRETE DISTEMPER	
1-109	DO	DO		DO	DO	
1-110	TERRAZZO		PORCELAIN TYLE 100" H=1448	DO	DO	WATER PROOF CEMENT MORTAR SLOPE 1/100
1-111	DO		DO	DO	DO	DO
1-112	TERRAZZO	TERRAZZO BLOCK H=76		DO	STYLOFOAM T 100 E.P	
1-113	DO		PORCELAIN TYLE 100" H=1448	DO	DO	WATER PROOF CEMENT MORTAR SLOPE 1/100
1-114	DO	TERRAZZO BLOCK H=76		DO	DO	
1-115	DO	DO		DO	CONCRETE DISTEMPER	
1-116	DO			MACHINE MADE BRICK (EXPOSED)	DO	
1-117	DO				DO	
1ST FLOOR						
1-201	NEEDLE PUNCH CARPET (QIC)	TERRAZZO BLOCK H=76		MORTAR DISTEMPER T=25	STYLOFOAM T=100 EP	
1-202	PORCELAIN TYLE 240×240			PORCELAIN TYLE 100×100	CONCRETE DISTEMPER	WATER PROOF CEMENT MORTAR SLOPE 1/100
1-203	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR DISTEMPER T25	DO	
1-204	NEEDLE PUNCH CARPET (QIC)	DO		DO	STYLOFOAM T=100 E.P	
1-205	TERRAZZO	DO		DO	CONCRETE DISTEMPER	
1-206						OPEN SPACE ABOV. ALLMINUM HOPPER GLASS WINDOW ORNAMENT BRICK
1-207	TERRAZZO			MACHINE MADE BRICK (EXPOSED)	CONCRETE DISTEMPER	
1-208	DO	TERRAZZO BLOCK H=76		MORTAR DISTEMPER T=25	STYLOFOAM T=100 EP	
1-209	DO	DO		DO	CONCRETE DISTEMPER	
1-210	DO		PORCELAIN TYLE 100" H=1448	DO	DO	
1-211	DO		DO	DO	DO	
1-212	NEEDLE PUNCH CARPET (QIC)	TERRAZZO BRICK H=76		DO	STYLOFOAM T=100 E.P	
1-213	TERRAZZO	DO		DO	CONCRETE DISTEMPER	
1-214	DO	DO		DO	DO	
1-215	DO			DO	DO	ORNAMENTAL BRICK
1-216	DO				DO	

JAPAN INTERNATIONAL CO-OPERATION AGENCY

DEVELOPMENT INSTITUTE A-00-3

SCHEDULE OF FINISH (EXTERIOR & INTERIOR)

15.07.1975

JAPAN [illegible] CONSULTANTS CO., LTD.

		FLOOR	BASE BOARD	WAINS COTING	WALL	CEILING	REMARKS
(2) MAIN BUILDING		GROUND FLOOR					
2	101	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	CONCRETE DISTEMPER	
2	102	DO	DO		DO	DO	
2	103	DO	DO		DO	DO	
2	104	DO	DO		DO	DO	
2	105	DO	DO		MACHINEMADE BRICK(EXPOSED)	DO	
2	106	DO	DO		MORTAR 25t DISTEMPER	DO	
2	107	DO	DO		DO	DO	
2	108	DO	DO		DO	DO	
2	109	DO		PORCELAIN TYLE 100×100	DO	DO	
2	110	DO		DO	DO	DO	
2	111	DO		DO	DO	STYLOFOAM	
2	112	DO		DO	DO	CONCRETE DISTEMPER	
2	113	TERRAZZO	TERRAZZO BLOCK H=76		DO	STYLOFOAM	
2	114	DO	DO		DO	DO	
2	115	DO	DO		DO	DO	
2	116	DO	DO		MACHINEMADE BRICK(EXPOSED)	CONCRETE DISTEMPER	
2	117	DO	DO		MORTAR 25t DISTEMPER	DO	
1ST FLOOR		DO	DO		DO	DO	
2	201	DO	DO		DO	DO	
2	202	DO	DO		DO	DO	
2	203	DO	DO		DO	DO	
2	204	DO	DO		DO	DO	
2	205	DO	DO		DO	DO	
2	206	DO	DO		DO	DO	
2	207	DO	DO		DO	DO	
2	208	DO	DO		DO	DO	
2	209	DO	DO		DO	DO	
2	210	DO		PORCELAIN TYLE 100×100	DO	DO	
2	211	DO		DO	DO	DO	
2	212	DO		DO	DO	DO	
2	213	DO		DO	DO	DO	
2	214	DO		DO	DO	DO	
2	215	NEEDLE PUNCH CARPET	TERRAZZO BLOCK H=76		DO	DO	
2	216	DO	DO		DO	DO	
2	217	TERRAZZO	DO		DO	DO	
2	218	DO	DO		DO	DO	
(3) AUDIO-VISUAL		CLASS ROOM BUILDING	GROUND FLOOR				
3	101	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	CONCRETE DISTEMPER	
3	102	DO		TERRAZZO BLOCK H=1448	DO	DO	
3	103	DO	TERRAZZO BLOCK H=76		DO	DO	
3	104	DO	DO		DO	DO	
3	105	DO	DO		DO	DO	
3	106	FLOORING BOARD TIMBER STRIP			DO	DO	
3	107	TERRAZZO	TERRAZZO BLOCK H=76		DO	DO	
3	108	DO	DO H=36		DO	DO	
(4) ASSEMBLY		HALL GROUND FLOOR					
4	101	TERRAZZO BLOCK 610×610				CONCRETE DISTEMPER	ORNAMENTAL BRICK
4	102	DO			MACHINE MADE BRICK(EXPOSED) POINTED JOINT	DO	
4	103	DO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	PLASTER BOARD(INSERATON)	ALUMINUM SLIDING GLASS WINDOW
4	104	DO	DO		DO	CONCRETE DISTEMPER	
4	105	TERRAZZO	DO		DO	DO	
4	106	DO		TERRAZZO BLOCK H=1448	DO	DO	
4	107	DO	TERRAZZO BLOCK H=76		DO	DO	
4	108	DO				DO	

		FLOOR	BASE BOARD	WAINS COTING	WALL	CEILING	REMARKS
(5) DINING ROOM		GROUND FLOOR					
5	101	TERRAZZO	TERRAZZO BLOCK H=36		MACHINE MADE BRICK(EXPOSED) POINTED JOINT	CONCRETE DISTEMPER	
5	102	TERRAZZO JOINTER	DO H=76		MORTAR 25t DISTEMPER	CONCRETE DISTEMPER	COUNTER HATCH
5	103	TERRAZZO JOINTER	DO H=152		DO	DO	FLOOR SLOPE 1/50 DRAINAGE DITCH W300 D300, IRON GRID COVER
5	104	TERRAZZO		TERRAZZO BLOCK H=1448	DO	DO	
5	105	DO		DO	DO	DO	
5	106	DO	TERRAZZO BLOCK H=152		DO	DO	
5	107	DO	DO		DO	DO	
5	108	DO	DO H=76		DO	DO	
5	109	DO		TERRAZZO BLOCK H=1448	DO	DO	
5	110	DO		DO H=1219	DO	DO	SINK, SHELF, TERRAZZO
(6) SUDI STATION		GROUND FLOOR					
6	101	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W=3	—		MACHINE MADE BRICK(EXPOSED) POINTED JOINT	CONCRETE DISTEMPER	
6	102	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	DO	
(7) HOSTEL (I)		GROUND FLOOR					
7	101	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	CONCRETE DISTEMPER	DOOR SILL TERRAZZO BLOCK
7	102	DO	DO		DO	DO	DO
7	103	DO	DO		DO	DO	DO
7	104	DO	DO		DO	DO	DO
7	105	TERRAZZO BLOCK 254×254	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	106	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR DISTEMPER	DO	SLOPE 1/50 CAST IRON
7	107	TERRAZZO BLOCK 254×254	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	108	DO	DO		DO	DO	DO
7	109	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR DISTEMPER	DO	SLOPE 1/50 CAST IRON
7	110	TERRAZZO BLOCK 254×254	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	111	DO	DO		DO	DO	DO
7	112	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR DISTEMPER	DO	SLOPE 1/50 CAST IRON
7	113	TERRAZZO BLOCK 254×254	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	114	DO	DO		DO	DO	DO
7	115	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR DISTEMPER	DO	SLOPE 1/50 CAST IRON
7	116	TERRAZZO BLOCK	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	117	TERRAZZO			DO	DO	
7	118	TERRAZZO	TERRAZZO BLOCK H=36		DO	DO	
1ST FLOOR							
7	201	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	CONCRETE DISTEMPER	DOOR SILL TERRAZZO BLOCK
7	202	DO	DO		DO	DO	DO
7	203	DO	DO		DO	DO	DO
7	204	DO	DO		DO	DO	DO
7	205	TERRAZZO BLOCK	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	206	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR DISTEMPER	DO	SLOPE 1/50
7	207	TERRAZZO BLOCK	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	208	DO	DO		DO	DO	DO
7	209	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR DISTEMPER	DO	SLOPE 1/50
7	210	TERRAZZO BLOCK	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	211	DO	DO		DO	DO	DO
7	212	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR DISTEMPER	DO	SLOPE 1/50
7	213	TERRAZZO BLOCK	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	214	DO	DO		DO	DO	DO
7	215	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR DISTEMPER	DO	SLOPE 1/50
7	216	TERRAZZO BLOCK	CONCRETE EXPOSED		MACHIN MADE BRICK (EXPOSED) POINTED JOINT	DO	SLOPE 1/50 RAIN WATER OUTLET P.V.C. PIPE 25ø
7	217	TERRAZZO			DO	DO	
7	218	DO	TERRAZZO BLOCK H=36		DO	DO	

Project: CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE — A-00-4

SCHEDULE OF FINISH (INTERIOR)

JAPAN INTERNATIONAL CO-OPERATION AGENCY — D.S. 15.07.1975

JAPAN ENGINEERING CONSULTANTS CO., LTD.

	FLOOR	BASE BOARD	WAINSCOTING	WALL	CEILING	REMARKS
8 HOSTEL (2)	GROUND FLOOR					
8—101	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	CONCRETE DISTEMPER	
8—102	DO	DO		DO	DO	
8—103	DO	DO		DO	DO	
8—104	DO	DO		DO	DO	
8—105	DO	DO		DO	DO	
8—106	DO	DO		DO	DO	
8—107	DO	DO		DO	DO	
8—108	DO	DO		DO	DO	
8—109	DO		TERRAZZO BLOCK H=2057	DO	DO	
8—110	TERRAZZO BLOCK	EXPOSED CONCRETE		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
8—111	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR 25t DISTEMPER	DO	
8—112	DO		DO	DO	DO	
8—113	TERRAZZO BLOCK	EXPOSED CONCRETE		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
8—114	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR 25t DISTEMPER	DO	
8—115	DO		DO	DO	DO	
8—116	TERRAZZO BLOCK	EXPOSED CONCRETE		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
8—117	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR 25t DISTEMPER	DO	
8—118	DO		DO	DO	DO	
8—119	TERRAZZO BLOCK	EXPOSED CONCRETE		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
8—120	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR 25t DISTEMPER	DO	
8—121	DO	TERRAZZO BLOCK H=36		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
9 HOSTEL (3)	GROUND FLOOR					
9—101	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	CONCRETE DISTEMPER	
9—102	DO	DO		DO	DO	
9—103	DO	DO		DO	DO	
9—104	DO	DO		DO	DO	
9—105	DO	DO		DO	DO	
9—106	DO	DO		DO	DO	
9—107	DO	DO		DO	DO	
9—108	DO	DO		DO	DO	
9—109	DO		TERRAZZO BLOCK H=2057	DO	DO	
9—110	TERRAZZO BLOCK	EXPOSED CONCRETE		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
9—111	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR 25t DISTEMPER	DO	
9—112	DO		DO	DO	DO	
9—113	TERRAZZO BLOCK	EXPOSED CONCRETE		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
9—114	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR 25t DISTEMPER	DO	
9—115	DO		DO	DO	DO	
9—116	TERRAZZO BLOCK	EXPOSED CONCRETE		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
9—117	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR 25t DISTEMPER	DO	
9—118	DO		DO	DO	DO	
9—119	TERRAZZO BLOCK	EXPOSED CONCRETE		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
9—120	TERRAZZO		TERRAZZO BLOCK H=2057	MORTAR 25t DISTEMPER	DO	
9—121	DO	TERRAZZO BLOCK H=36		MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
10 COMMON ROOM	GROUND FLOOR				DO	
10—101	TERRAZZO		TERRAZZ BLOCK H-1448	MORTAR 25t DISTEMPER	CONCRETE DISTEMPER	
10—102	DO	TERRAZZO BLOCK H=76		DO	DO	SINK, SHELF, TERRAZZO
10—103	DO	DO		DO	DO	
10—104	DO	DO		DO	DO	
10—105						
11 MACHINE STORE	GROUND FLOOR					
11—101	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W=13	CONCRETE EXPOSED H=76		MACHINE MADE BRICK P.J. COLUMN H=125x125, O.P.	F.S.P. ROOF HEAT INSULATING ASBESTOS SPRAYED 25t	
11—102	DO					

	FLOOR	BASE BOARD	WAINSCOTING	WALL	CEILING	REMARKS
12 MACHINERY WORKSHOP & MACHINE STORE	GROUND FLOOR					
12—101	TERRAZZO		TERRAZZO BLOCK H=1448	MACHINE MADE BRICK EXPOSED	CONCRETE DISTEMPER	
12—102	DO	TERRAZZO BLOCK H=152		MORTAR 25t DISTEMPER	F.S.P. ROOF	SINK
12—103	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W=13			MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
12—104	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	DO	
12—105	DO	DO		DO	HEATINSULATING S.F.100t F.P.	
12—106	DO	DO		DO	F.S.P. ROOF	
12—107	DO	DO		DO	DO	
12—108	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W=13	MORTAR DISTEMPER H=152		DO	DO	
12—109	DO			MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
12—110	DO			DO	DO	
12—111	DO			DO	DO	
12—112	DO	CONCRETE EXPOSED H=152		DO	DO	
12—113	DO	DO			DO	
13 FIELD MANAGEMENT BUILDING	GROUND FLOOR					
13—101	TERRAZZO		TERRAZZO H=1448	MACHINE MADE BRICK EXPOSED	F.S.P. ROOF HEAT INSULATING ASBESTOS SPRAYED 25t	
13—102	DO	TERRAZZO H=76		MORTAR 25t DISTEMPER	DO	
13—103	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W=13	CONCRETE EXPOSED H=76		MACHINE MADE BRICK P.J. PART ASBESTOS BD. O.P.	DO	
13—104	DO			MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
13—105	DO			DO	DO	
13—106	DO			DO	DO	
13—107	DO			DO	DO	
13—108	DO					
13—109	TERRAZZO	TERRAZZO BLOCK H=302		ASBESTOS BOARD 10t O.P. HEAT INSULATING S.F. 100L	ASBESTOS BOARD 10t O.P. HEAT INSULATING S.F. 100L	
13—110	DO	DO		DO	DO	
13—111	DO	TERRAZZO BLOCK H=76		MACHINE MADE BRICK EXPOSED POINTED JOINT		
13—112	DO	DO		MORTAR 25t DISTEMPER	F.S.P. ROOF	
13—113	DO	DO		DO	DO	
13—114	DO	DO		DO	DO	
14 GARAGE	GROUND FLOOR					
14—101	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W=13	CONCRETE EXPOSED H=152		MACHINE MADE BRICK EXPOSED POINTED JOINT	F.S.P. ROOF HEAT INSULATING ASBESTOS SPRAYED 25t	
14—102	TERRAZZO	TERRAZZO BLOCK H=76		MORTAR 25t DISTEMPER	DO	
14—103	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W=13			MACHINE MADE BRICK EXPOSED POINTED JOINT	DO	
14—104	TERRAZZO		TERRAZZO H=1448	MORTAR 25t DISTEMPER	DO	
14—105	CONCRETE FINISHED WITH TROWEL WOOD JOINTER W=13					

Project	CENTRAL EXTENSION RESOURCES DEVELOPMENT INSTITUTE
Title	SCHEDULE OF FINISH (INTERIOR)
Drawn	D.S.
Date	15.07.1975
No.	A-00-5
Scale	—

JAPAN INTERNATIONAL CO-OPERATION AGENCY

JAPAN ENGINEERING CONSULTANTS CO., LTD.