

**3-6 Scope of Work**  
(Division of Responsibilities)

A. Items to be provided for the Center as part of this work by the Japanese side will be as follows:

- (1) Structure and architectural finishes of the Center Building
- (2) Water supply, drainage and sanitary service equipment within the Center Building
- (3) Cooling and ventilation equipment within the Center Building
- (4) Electrical equipment within the Center Building
- (5) Elevator equipment within the Center Building
- (6) Fire alarm and fighting equipment within the Center Building
- (7) Conduit lines within the Center Building as required for telephone wiring to be installed by others
- (8) Exterior land finishing work up to one (1) meter from the exterior walls of the Center Building
- (9) Exterior service connections up to one (1) meter from the exterior walls of the Center Building
- (10) Training equipment, complete with accessories, installed in place and connected to required service lines

B. Items to be provided by the Philippine side will be as follows:

- (1) Demolish and remove all obstacles, both above and underground, in and in the immediate vicinity of the building site
- (2) Provide the following service utilities up to the Center Building
  - (a) External water supply line
  - (b) External storm drainage lines
  - (c) External sewer drainage lines
  - (d) External power supply line
  - (e) External telephone lines
  - (f) Gas Supply
- (3) Provide required landscaping beyond the immediate one (1) meter area around the Center Building
- (4) Telephone wiring and handsets required within the Center
- (5) Provide required furniture rugs and drapes except those specifically provided by Japanese side.

### 3-7 Tabulation of Floor Areas

#### FIRST FLOOR

##### Training Area

Automotive Training Room including Welding Training Section	330.8 m <sup>2</sup>
Boiler Room	18.0
Generator & Control Room	49.5
Pump Room	8.4
Office & Storage	16.5

##### Classroom Area

Civil Training Room	126.0
Snack & Lounge	108.0
Toilets	54.0

##### Other Areas

309.06

##### Subtotal

1,020.26 m<sup>2</sup>

#### SECOND FLOOR

##### Training Area

Stationary & Marine Engine Training Room	
Refrigeration & Air Conditioning Training Room	395.9 m <sup>2</sup>
Test Room	15.8
Freezer Room	6.8
Office & Storage	16.5
Equipment Library Storage	49.5

##### Classroom Area

Classroom	90.0
Classroom	72.0
Classroom	72.0
Toilets	54.0

##### Other Areas

237.5

##### Subtotal

1,010.0 m<sup>2</sup>

#### THIRD FLOOR

##### Training Area

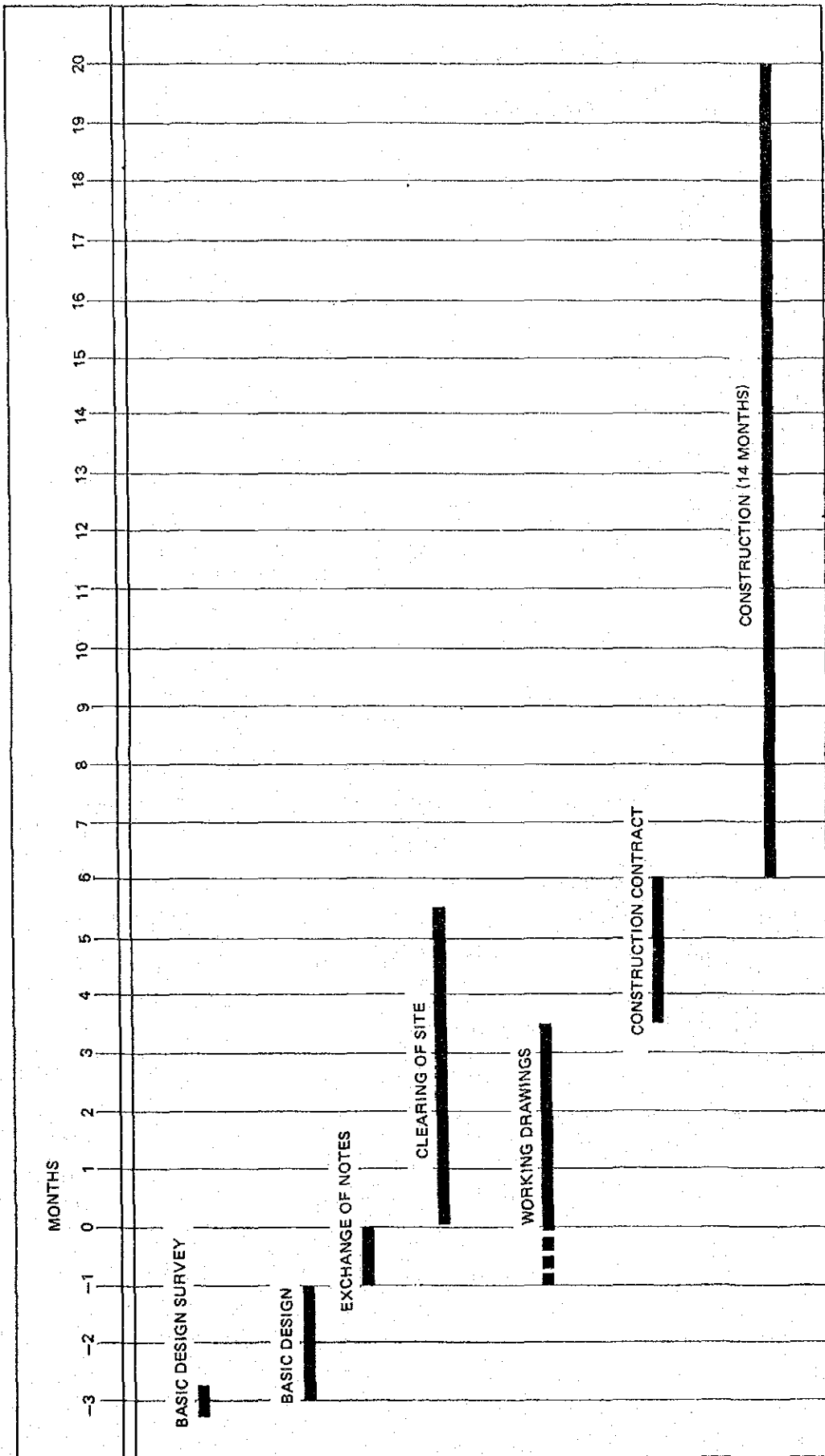
Machining Training Room (including Finishing & Welding Training Rooms)	244.1 m <sup>2</sup>
Woodwork Training Room	139.5
Precision Measuring Room	34.9
Storage	49.5
Office & Storage	16.5

##### Classroom Area

Drawing Classroom	90.0
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Classroom	72.0
Classroom	72.0
Toilets	54.0
Other Areas	237.5
Subtotal	1,010.0 m <sup>2</sup>
<b>FOURTH FLOOR</b>	
Training Area	
Electrical Training Room	348.7 m <sup>2</sup>
Electronic Training Room	69.8
Radio Equipment Room	12.7
Office	36.8
Office & Storage	16.5
Classroom Area	
Design & Product Development Room	108.0
Printing & Publication Room	90.0
Office	36.0
Toilets	54.0
Other Areas	237.5
Subtotal	1,010.0 m <sup>2</sup>
<b>FIFTH FLOOR</b>	
Training Area	
Conference Hall (Sports & Recreation Room)	418.5 m <sup>2</sup>
Air Conditioning Room	22.0
Production Studio Recording Room	27.5
Storage	16.5
Classroom Area	
Audio Visual Room	90.0
Library, Reference & Materials Room	72.0
Staff Study & Research Room	72.0
Toilets	54.0
Other Areas	237.5
Subtotal	1,010.0 m <sup>2</sup>
<b>ROOF FLOOR</b>	
Elevator Machine Room	15.5 m <sup>2</sup>
<b>TOTAL FLOOR AREA</b>	<b>5,075.76 m<sup>2</sup></b>

3-8 WORK SCHEDULE



### 3-9 Estimate of Costs

A. Building Cost	¥920,000,000
B. Training Equipment Cost	420,000,000
C. Consultant Fee	160,000,000
<hr/>	
Total	¥1,500,000,000



Republic of the Philippines  
TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES  
(Formerly Philippine College of Arts and Trades)  
M o n i l o

Please address reply to:  
The President

Telephones:  
58-63-55  
59-30-05

March 22, 1979

Dr. Takashi Watanabe  
L e a d e r  
JICA Mission for the Integrated  
Research and Training Center

Dear Dr. Watanabe:

It is our pleasure to inform you that the Technological University of the Philippines has reviewed the draft report on the basic design of the Integrated Research and Training Center, a Japanese grant aid project to the Philippines, through JICA, as prepared by the Matsuda, Hirata and Sakamoto, Architects and Engineers, Inc., and finds it acceptable after the proposed amendments as taken up during the series of discussions have been considered.

The Matsuda, Hirata and Sakamoto, Architects and Engineers, Inc., can therefore proceed to prepare the detailed design based on the amended draft report of the basic design.

The National Economic and Development Authority (NEDA) and the Ministry of Education and Culture (M&C) of the Philippine Government have advised that the established precedents on this type of project authorizes the recipient agency of the government to sign the contract for the architectural services, the building construction and the approved equipment which in this case is the Technological University of the Philippines.

Very truly yours,

A handwritten signature in cursive script, reading "Jose R. Vergara".

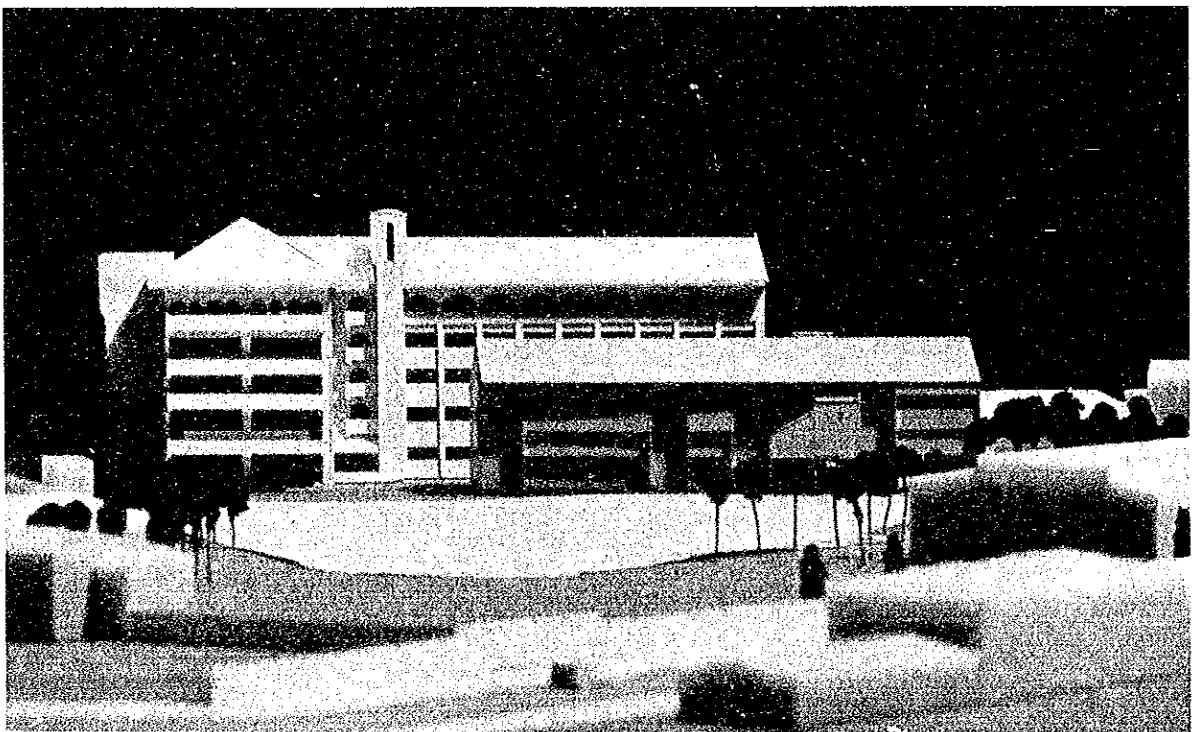
JOSE R. VERGARA  
President

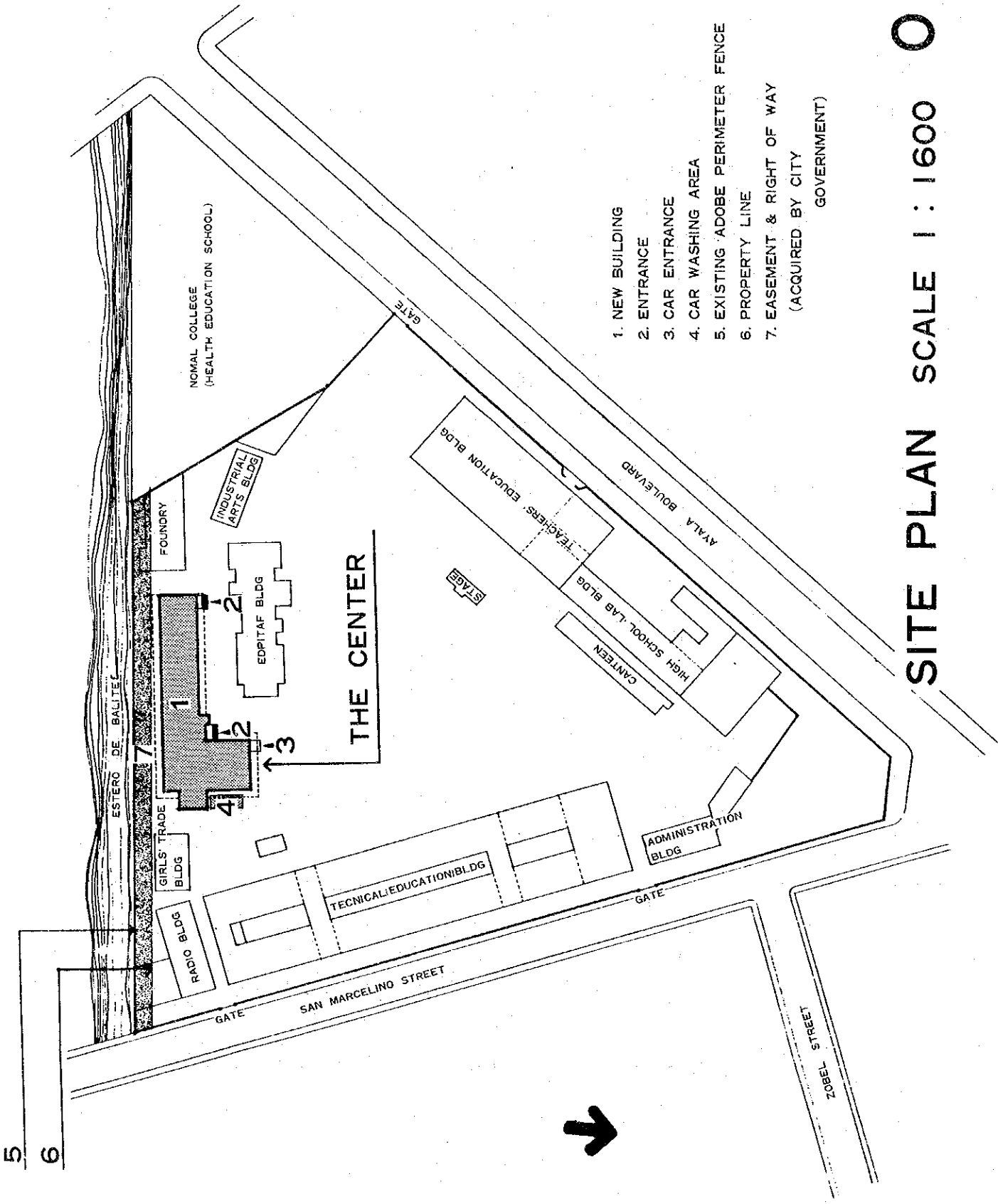
Technological University of the Philippines

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**3-10 Preliminary Drawings**

1. SITE PLAN
2. FIRST FLOOR PLAN
3. SECOND FLOOR PLAN
4. THIRD FLOOR PLAN
5. FOURTH FLOOR PLAN
6. FIFTH FLOOR PLAN
7. ROOF FLOOR PLAN
8. NORTH ELEVATION
9. EAST ELEVATION
10. SOUTH ELEVATION
11. WEST ELEVATION
12. SECTION-1
13. SECTION-2
14. LAYOUT OF DEMOLITION AND UTILITY CONNECTIONS



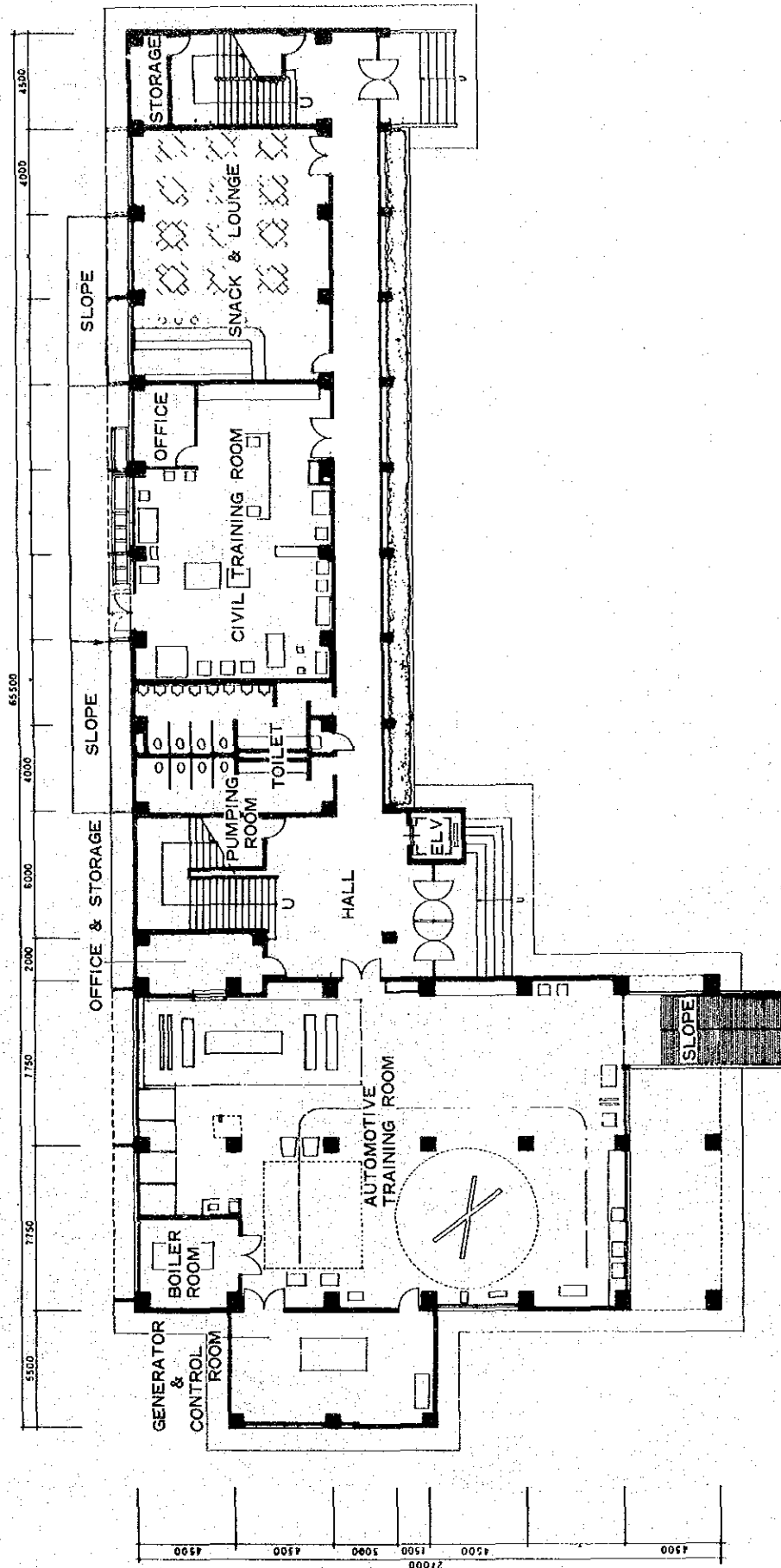


1. NEW BUILDING
2. ENTRANCE
3. CAR ENTRANCE
4. CAR WASHING AREA
5. EXISTING ADOBE PERIMETER FENCE
6. PROPERTY LINE
7. EASEMENT & RIGHT OF WAY  
(ACQUIRED BY CITY GOVERNMENT)

SITE PLAN SCALE 1 : 1600 0 1

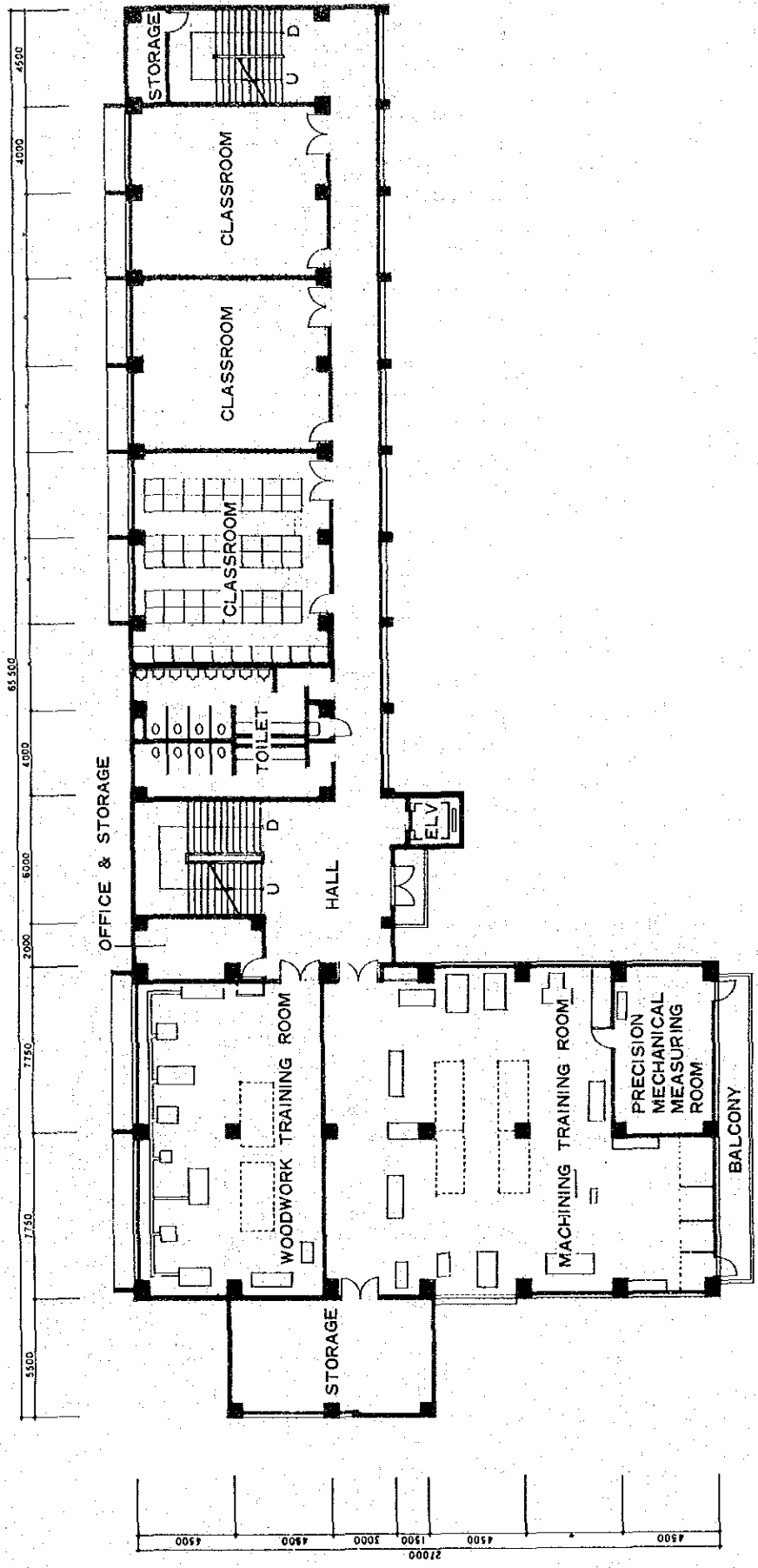
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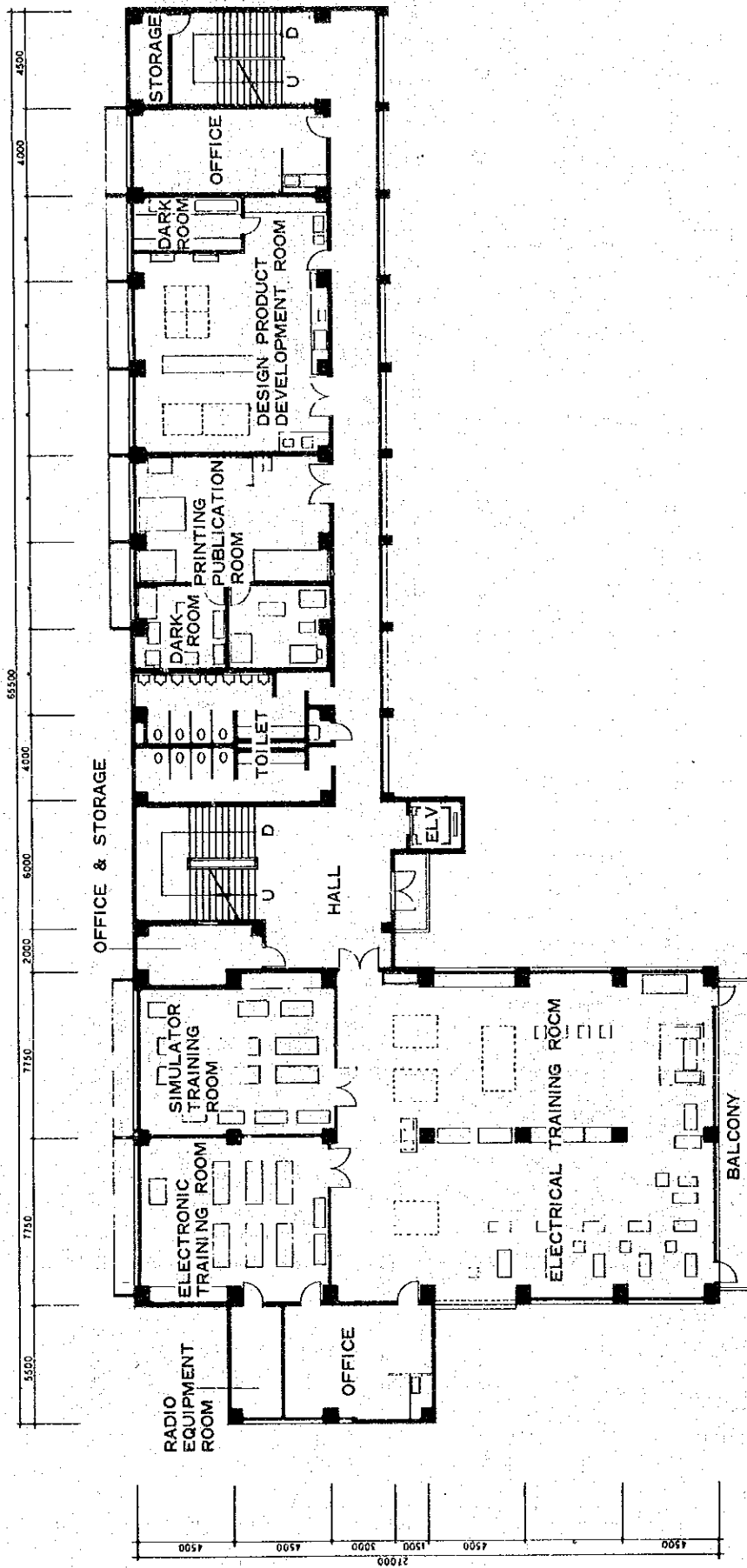


FIRST FLOOR PLAN SCALE 1 : 300 02

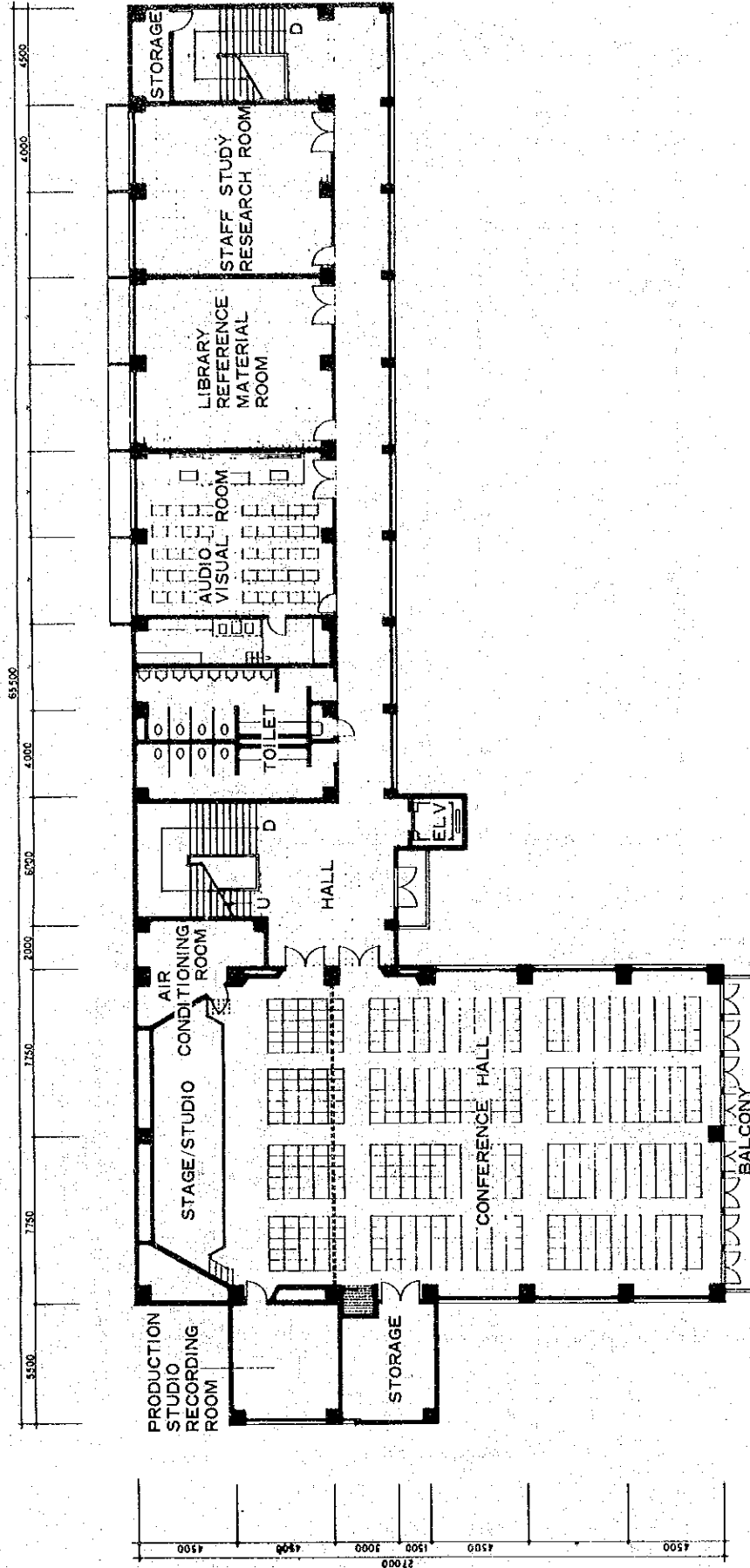




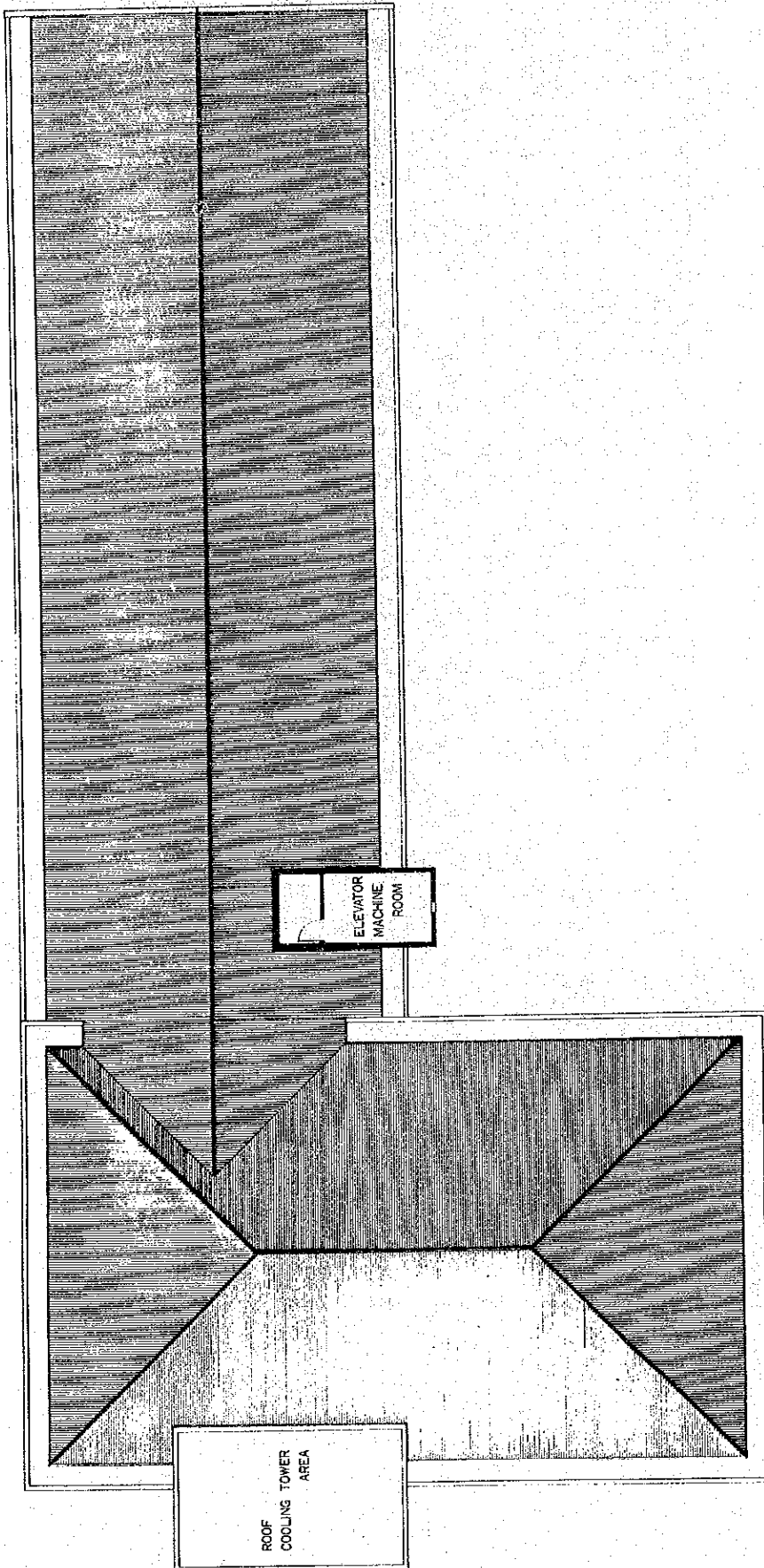
THIRD FLOOR PLAN SCALE 1 : 300 04



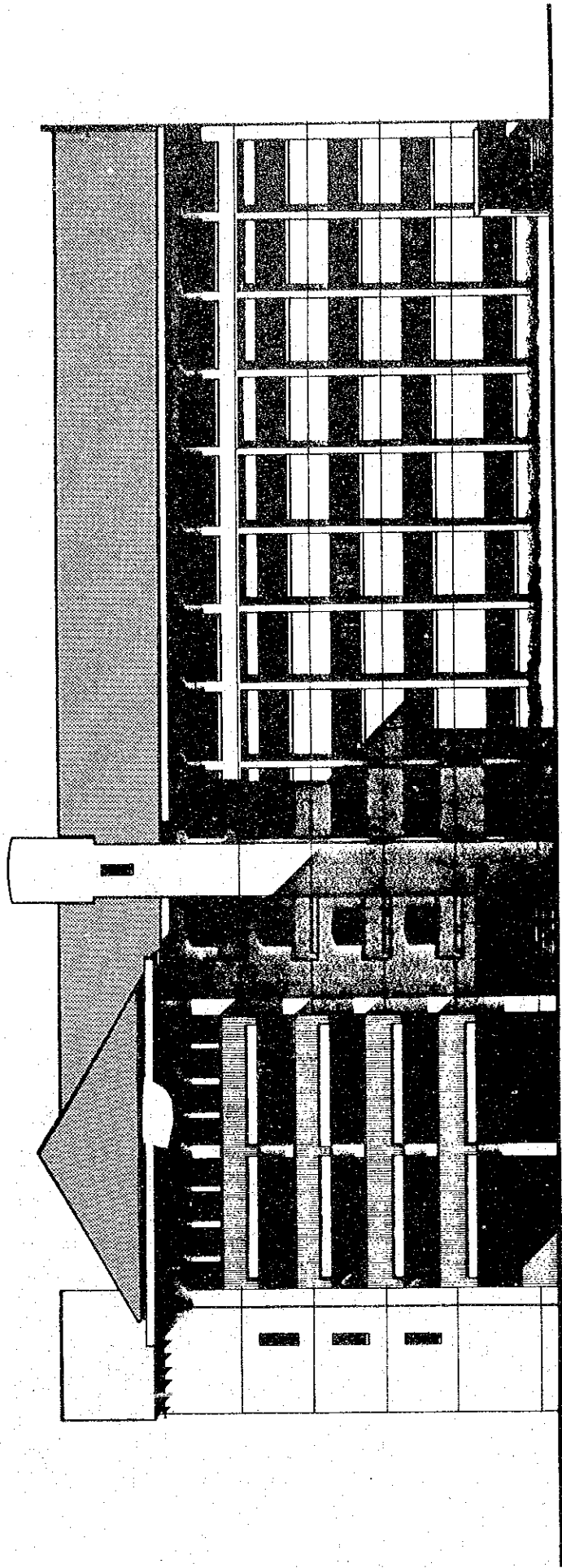
FOURTH FLOOR PLAN SCALE 1 : 300 05



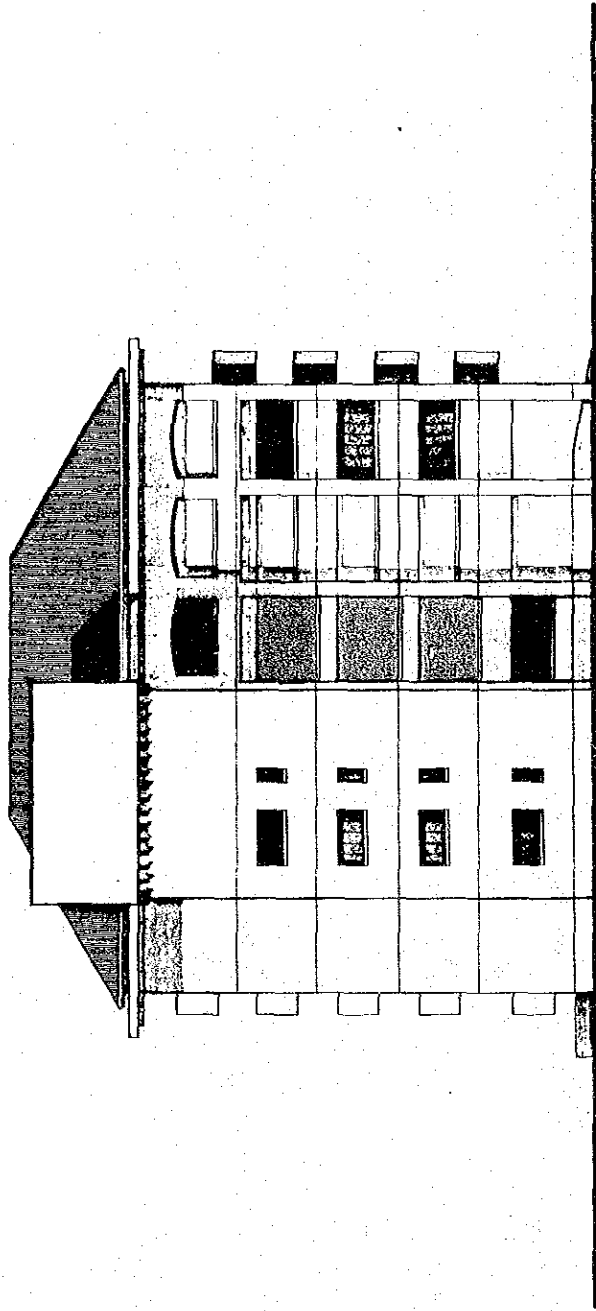
FIFTH FLOOR PLAN SCALE 1 : 300 06



ROOF FLOOR PLAN SCALE 1 : 300 07

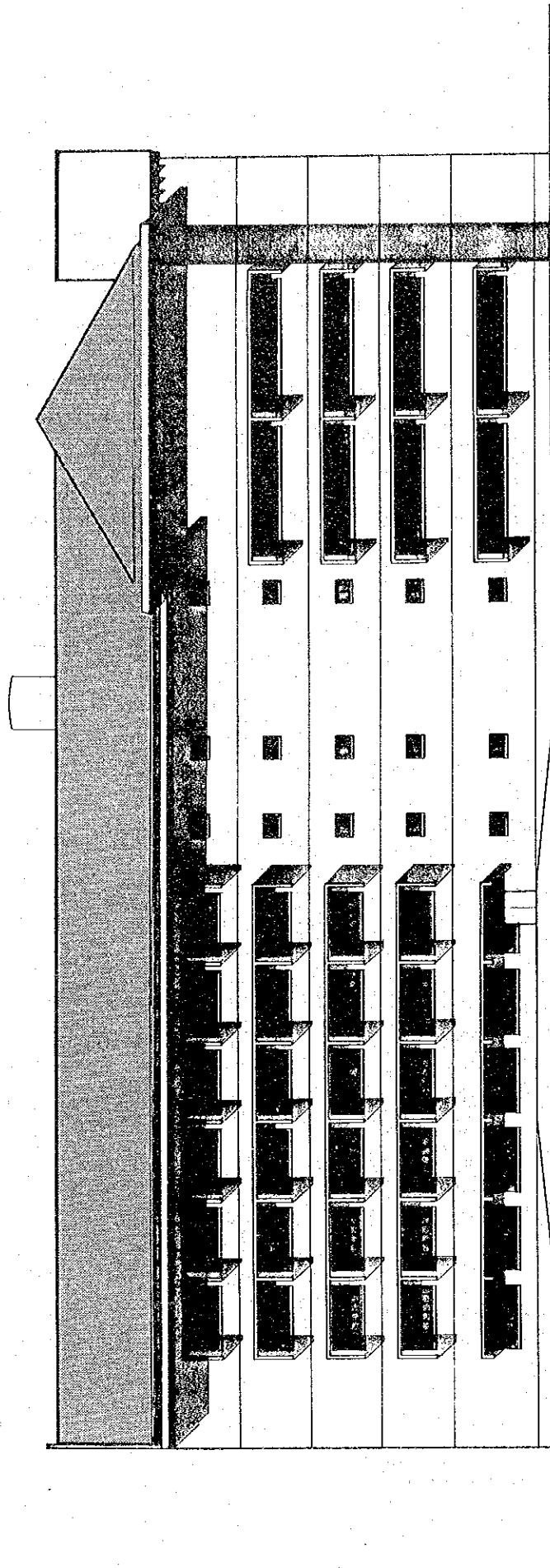


NORTH ELEVATION SCALE 1 : 300 08

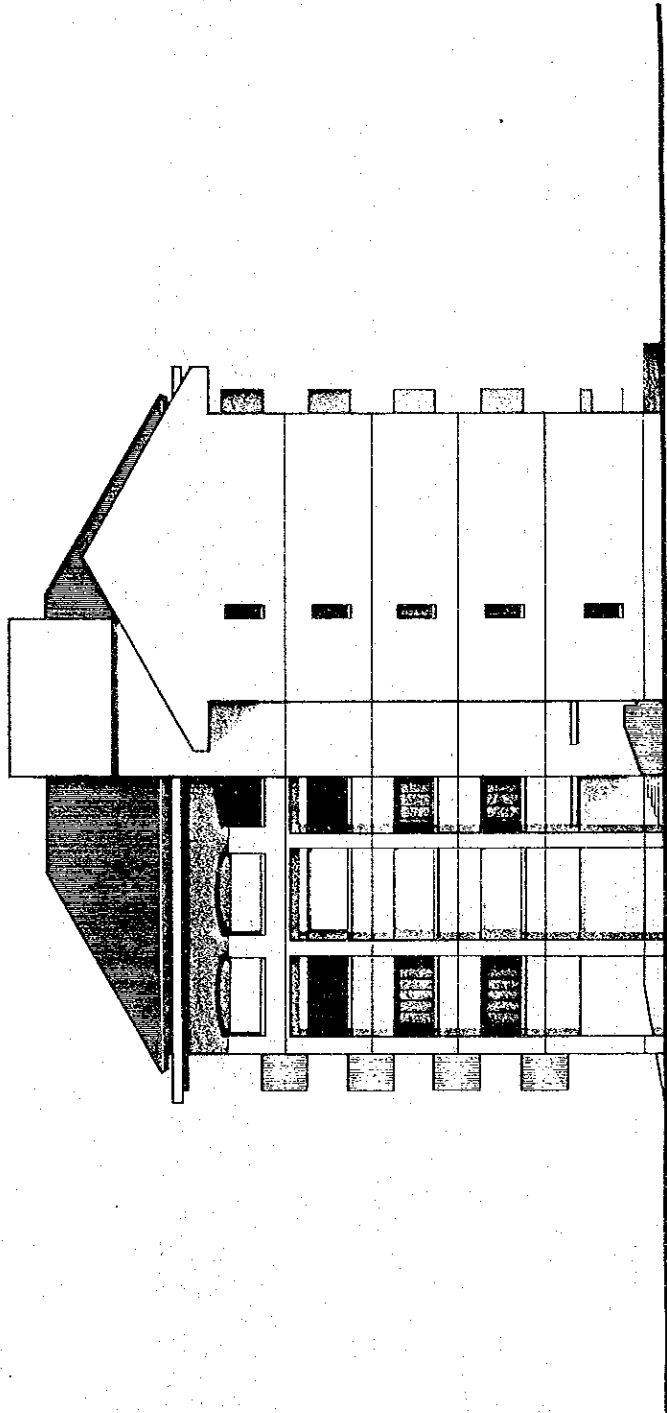


EAST ELEVATION SCALE 1 : 300 09

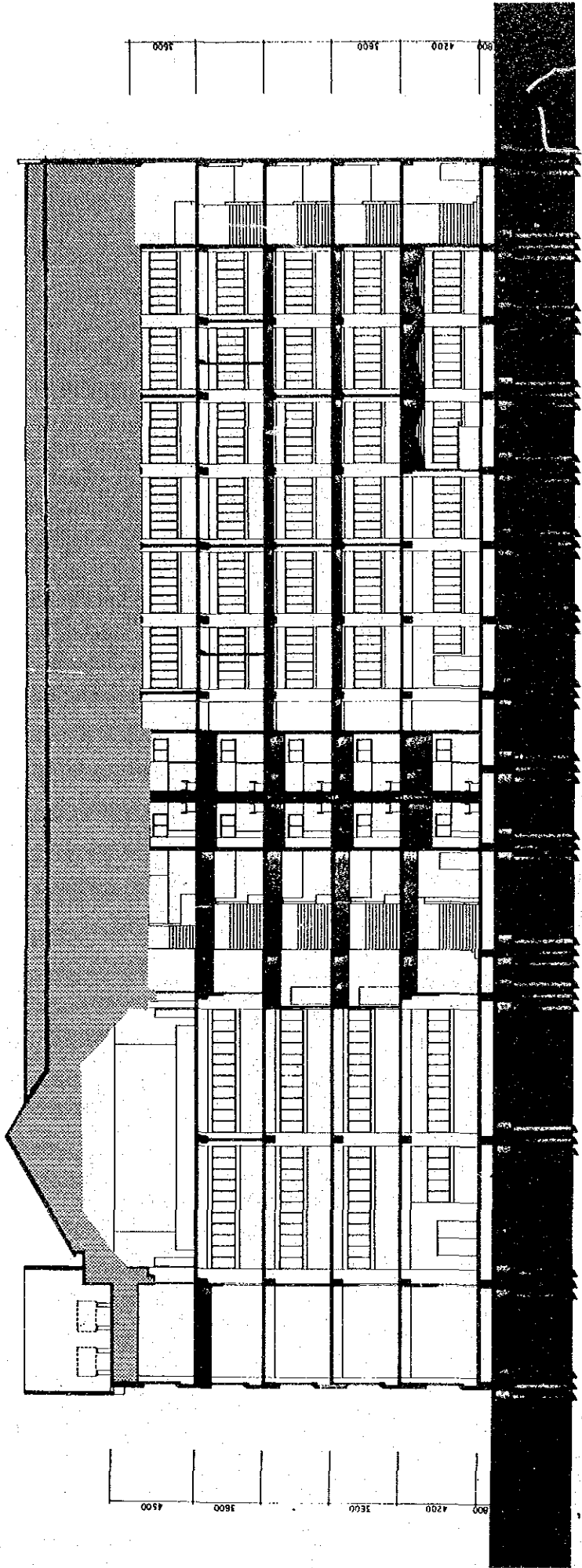




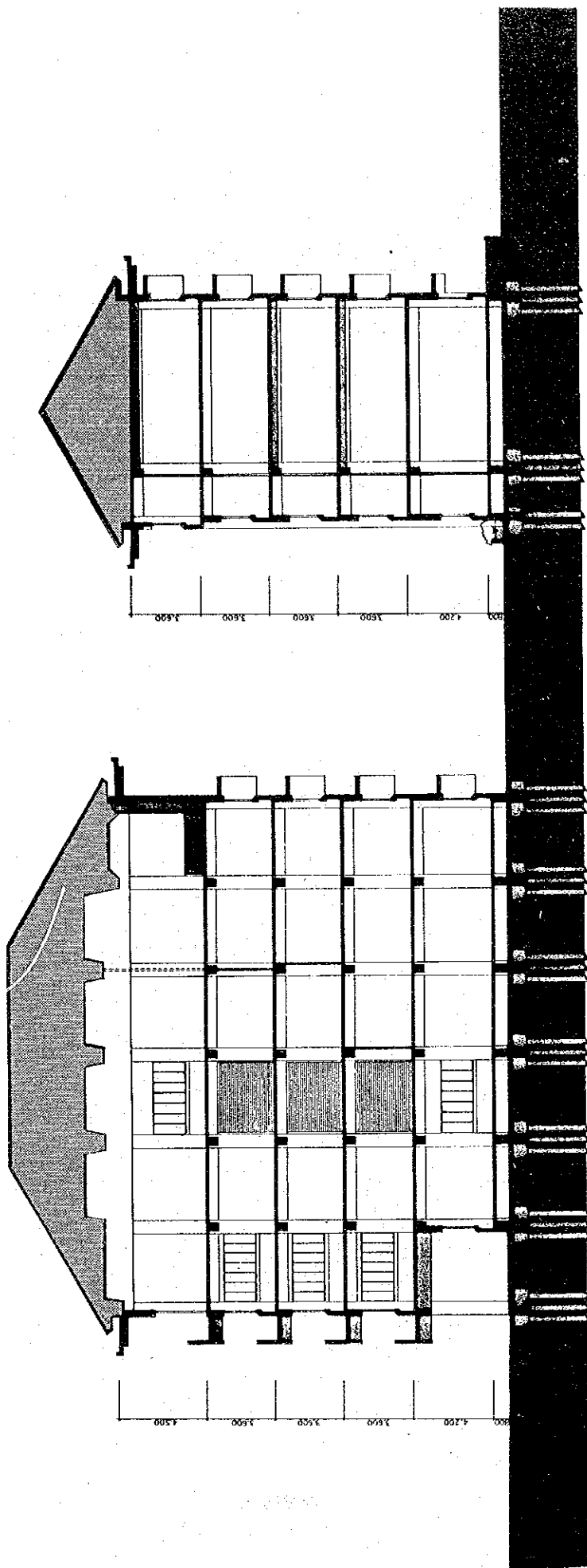
SOUTH ELEVATION SCALE 1 : 300 10



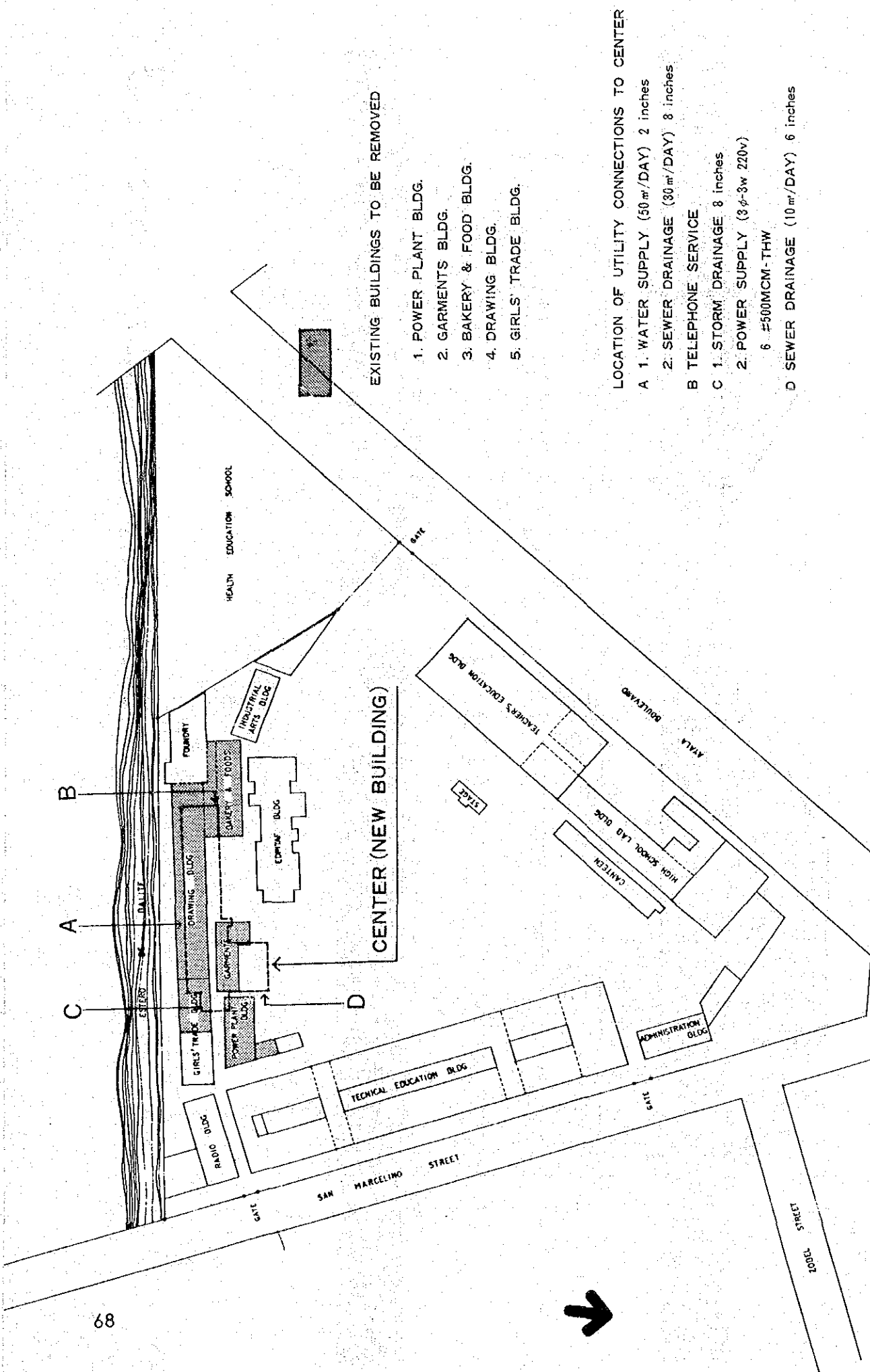
WEST ELEVATION SCALE 1 : 300



SECTION-I SCALE 1 : 300 12



SECTION-2 SCALE 1 : 300 | 3



EXISTING BUILDINGS TO BE REMOVED

1. POWER PLANT BLDG.
2. GARMENTS BLDG.
3. BAKERY & FOOD BLDG.
4. DRAWING BLDG.
5. GIRLS' TRADE BLDG.

LOCATION OF UTILITY CONNECTIONS TO CENTER

- A 1. WATER SUPPLY (50 m<sup>3</sup>/DAY) 2 inches
- 2. SEWER DRAINAGE (30 m<sup>3</sup>/DAY) 8 inches
- B TELEPHONE SERVICE
- C 1. STORM DRAINAGE 8 inches
- 2. POWER SUPPLY (3 φ-3w 220v) 6 #500MCM-THW
- D SEWER DRAINAGE (10 m<sup>3</sup>/DAY) 6 inches

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## CHAPTER 4 TRAINING EQUIPMENT

### 4-1 Outline

Though a comprehensive list of training equipment to be provided for the Center was initially brought up by TUP, after careful consideration of the building size, the anticipated curriculum, and as a result of discussions between staff members of TUP and the Basic Design Survey Team, equipment outlined in the following section were selected.

The listing is intended to indicate only the main equipment to be provided. All the equipment, together with necessary accessories, are to be installed in the Center complete with required service connections.

4-2 List of Main Training Equipment

	DESCRIPTION	QUANTITY
<b>AUTOMOTIVE</b>		
1.	Brake Tester	1
2.	Side Slip Tester	1
3.	Head Light Tester	1
4.	Camber-Caster-King Pin Gauge	1
5.	Turning Radius Gauge	1
6.	Wheel Alignment Tester	1
7.	Air Compressor	1
8.	Air Lift, Large	1
9.	Air Lift, Small	1
10.	Car Washer	1
11.	Steam Cleaner	1
12.	Cylinder Boring Machine	1
13.	Valve Refacer	1
14.	Valve Seat Grinder	1
15.	Brake Drum Lathe	1
16.	Brake Shoe Grinder	1
17.	Wheel Balancer	1
18.	Infrared Dryer Stand	2
19.	Armature Lathe	1
20.	Porto Pauer	1
21.	Universal Trolley	1
22.	Hydraulic Press	1
23.	Engine Analyzer	1
24.	Engine Scope	1
25.	AC Arc Welder	1
26.	Gas Welder	1
27.	Bench Type Drilling Machine	1
28.	Double-Head Grinder	1
29.	Engine Stand	1
30.	Battery Charger	1
31.	Gasoline Engine	4
32.	Diesel Engine	2
33.	Rotary Engine	1
34.	Transmission Unit	3
35.	Automobile for Training	3
<b>EMERGENCY GENERATOR</b>		
1.	Diesel Engine Generator (100 KW)	1

	DESCRIPTION	QUANTITY
CIVIL		
1.	Calibration Tester	1
2.	Motorized Liquid Limit Device	2
3.	Mixer	2
4.	Proctor Mould	6
5.	Rammer	6
6.	Concrete Core Drilling Machine	1
7.	ASTM Type Flow Table	2
8.	Speed Moisture Tester	1
9.	Los Angeles Abrasive Machine	1
10.	Loss-on Heating Oven	1
11.	Saw Bench	1
12.	Fan Connected Oven	1
13.	Concrete Mixer	1
14.	Vicat Apparatus	2
15.	Autoclave	1
16.	Sieve Shaker	1
17.	Le Chetailer's Flask	6
18.	Mortar Mould	6
19.	Sand Pouring Cylinder Apparatus	3
20.	Cone Sand Apparatus	3
21.	Rotary Separator	1
22.	Ductilometer	1
23.	Saybolt Viscosity Apparatus	1
24.	Soil Hydrometer	3
25.	Automatic Soil Compaction Machine	1
26.	Air Compressor	1
27.	Transit	6
28.	Philadelphia Rods	6
29.	Concrete Vibrator	2
30.	Universal Testing Machine (100 t)	1
31.	Steel Reinforcement Detection Meter	1
32.	Portable Jack Hammer	1
33.	Torbai Optical Projection Balance	1
34.	Self Levelling Balance	1
35.	Venier Caliper	1
36.	Surveyor's Steel Tape	1



	DESCRIPTION	QUANTITY
<b>AUDIO VISUAL</b>		
1.	Microphones .....	5
2.	Disk Player .....	1
3.	Cassette Tape Decks .....	2
4.	Open Tape Decks .....	2
5.	Stereo Receiver .....	1
6.	Amplifier .....	1
7.	Main Speakers .....	2
8.	Sub Speakers .....	2
9.	Monitor Speakers .....	2
10.	VTR Decks .....	2
11.	Color TV (20") .....	1
12.	TV Monitors (20") .....	3
13.	TV Monitor (12") .....	1
14.	TV Monitor ( 6") .....	1
15.	Slide Projector .....	1
16.	Overhead Projector .....	1
17.	8 mm Sound Projector .....	1
18.	16 mm Sound Projector .....	1
19.	Main Screen 3.5 x 2 .....	1
20.	Sub Screen 1.8 x 1.8 .....	1
21.	Main Control Board .....	1
22.	Sub Control Board .....	1
23.	Blackboard .....	1

**STAFF STUDY**

1.	VTR Deck .....	1
2.	TV Monitor .....	1
3.	Overhead Projector .....	1
4.	Slide Projector .....	1
5.	Screen 1.8 x 1.8 .....	1

	DESCRIPTION	QUANTITY
<b>WOOD PATTERN MAKING</b>		
1.	Wood Lathe Machine	1
2.	Core Box Machine	1
3.	Wood Band Saw	1
4.	Spindle Sander	1
5.	Disk Sander	1
6.	Planer	1
7.	Jointer	1
8.	Saw Tooth Grinding Machine	1
9.	Planer Cutter Grinding Machine	1
10.	Dust Collector	1
<b>MECHANICAL</b>		
1.	Hydro-Mechanics Trainer	1
2.	Vertical Milling Machine	1
3.	Cylindrical Grinding Machine	1
4.	Gear Shaper	1
5.	Hobbing Machine	1
6.	Universal Tool Cutting Machine	1
7.	Hack-Saw	1
8.	Electrical Discharge Machine	1
9.	Plastic Injection Molding Machine	1
10.	Bench Type Drilling Machine	1
11.	Double Head Grinder	1
12.	Tool and Measuring Instruments	comp
13.	Precision Lathe	1
<b>SHEET METAL &amp; WELDING</b>		
1.	AC Arc Welder	4
2.	Gas Welder	2
3.	Bench Type Drilling Machine	1
4.	Double Head Grinder	1
5.	Vise	8

	DESCRIPTION	QUANTITY
<b>ELECTRICAL &amp; ELECTRONICS</b>		
1.	M-G Control Training Unit	3
2.	Motor Controller Unit	2
3.	Transformer	3
4.	Motor Control Circuit Trainer	2
5.	Basic Electric Circuit Trainer	3
6.	Double-Head Grinder	1
7.	Bench Type Drilling Machine	1
8.	Ward-Leonard M-G Control System	1
9.	DC-AC Universal M-G Training System	1
10.	Transmission Line Training System	1
11.	Portable Generator	1
12.	Transistor Circuit Trainer	1
13.	TV Training System	1
14.	Sequence Control Trainer	1
15.	Logic Circuit Trainer	1
16.	Feedback Control Trainer	1
17.	Servo Mechanic Training System	1
18.	Microwave Measuring Trainer	1
19.	Automatic Control Simulator	comp
20.	Induction Voltage Regulator	1
21.	Synchronizing Generator Parallel Operation System	1

**RADIO**

1.	Transceiver	2
2.	Audio Mixer	1
3.	Cassette Tape Decks	2
4.	Disk Player	1

	DESCRIPTION	QUANTITY
<b>PRINTING</b>		
1.	Composing Machine	1
2.	Process Camera	1
3.	Temperature-Controlled Sink	1
4.	Sink-Top Light Table	1
5.	Plate Coating Machine	1
6.	Plate Drying Cabinet	1
7.	Light Table	1
8.	Vacuum Printing Frame	1
9.	Film Drying Cabinet	1
10.	Densitometer	1
11.	Automatic Film Processor	1
12.	Vacuum Printing Cabinet	1
13.	One Color Small Offset Press	1
14.	Hand Paper Cutter	1
15.	Folding Machine	1
16.	Book Stitcher	1
17.	Contact Screens (Magnet Contact)	1
18.	Contact Screens (Grey Contact)	1
19.	Crossline Glass Screen (2 size)	1
20.	Stencil Printing Machine	1

**DESIGN PRODUCTION DEVELOPMENT**

1.	Dry Copier	2
2.	Ziaco Copier	1
3.	35 mm Camera	2
4.	Enlarger System	1
5.	Overhead Projector	2
6.	Drafter Sets	2
7.	Drawing Instrument Sets	5
8.	8 mm Movie Projector	1
9.	Slide Projector	1
10.	Projection Screen	1
11.	Transparency Maker	1
12.	Art Sets	5
13.	VRT Set	1
14.	Cassette Recorders	2
15.	Bench Type Drilling Machine	1
16.	Double Head Grinder	1
17.	Vise	1
18.	Portable Electric Drill	1

	DESCRIPTION	QUANTITY
<b>CONFERENCE</b>		
1.	Microphone (Wire & Stand) .....	3
2.	Microphone (Wireless) .....	2
3.	Cassette Tape Decks .....	2
4.	Receiver (FM AM) .....	1
5.	Amplifier .....	1
<b>PRODUCTION STUDIO RECORDING</b>		
1.	Color Camera .....	2
2.	Microphone .....	3
3.	Color Monitor .....	6
4.	Lighting Dimmer .....	1
5.	Audio Mixer .....	1
6.	Master Control Console .....	1
7.	16 mm Film Projector .....	1
8.	35 mm Slide Projector .....	1
9.	Color Camera .....	1
10.	Videocassette .....	2
11.	Videocassette Editing Control Console .....	2
12.	Tape Deck .....	1
13.	Cassette Deck .....	1
14.	Audio Amplifier .....	1
15.	Speaker .....	1
16.	Audio Control Console .....	1

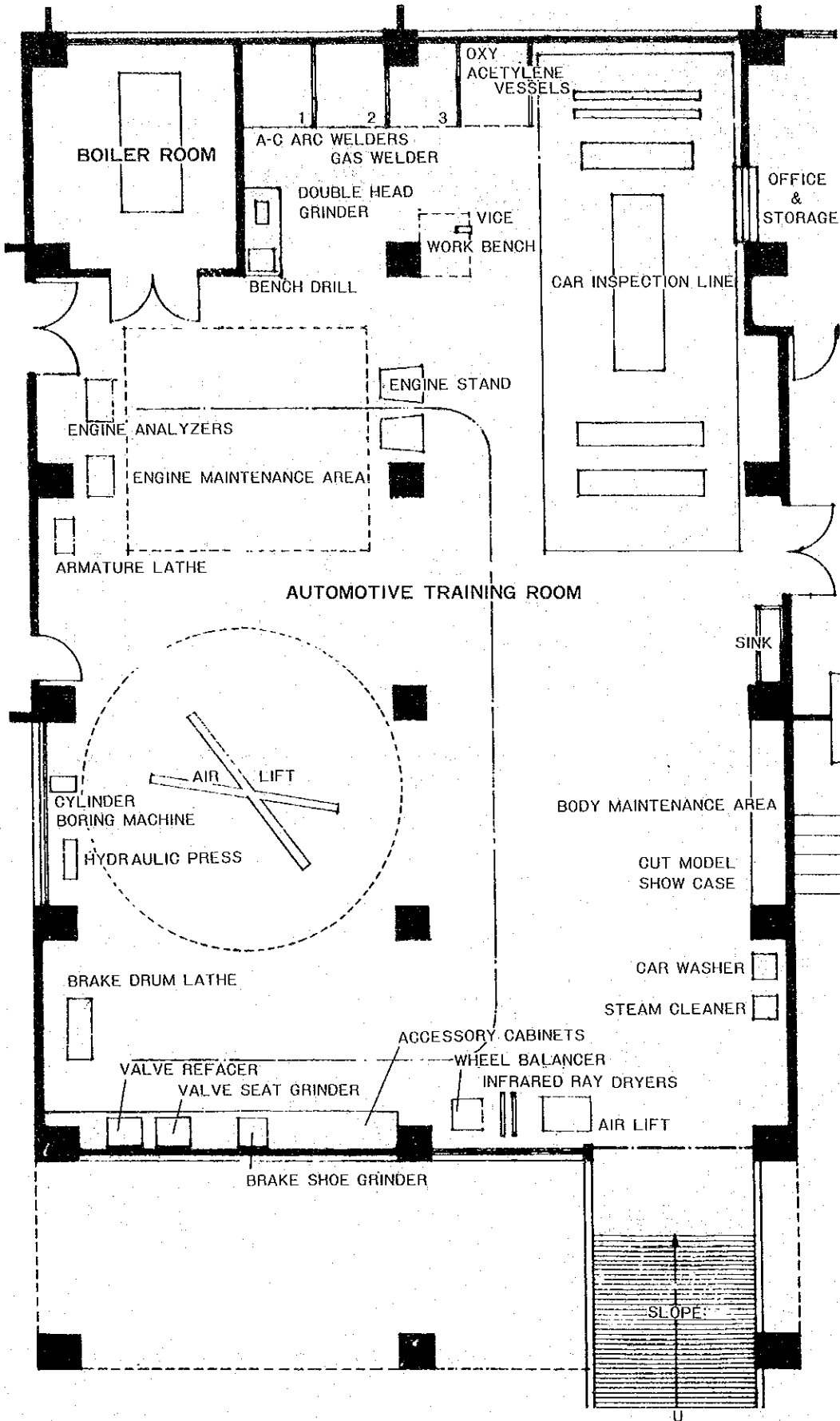
	DESCRIPTION	QUANTITY
<b>DRAFTING</b>		
1.	Drafter .....	2
2.	Copy Work Table .....	1

**FOUNDRY**

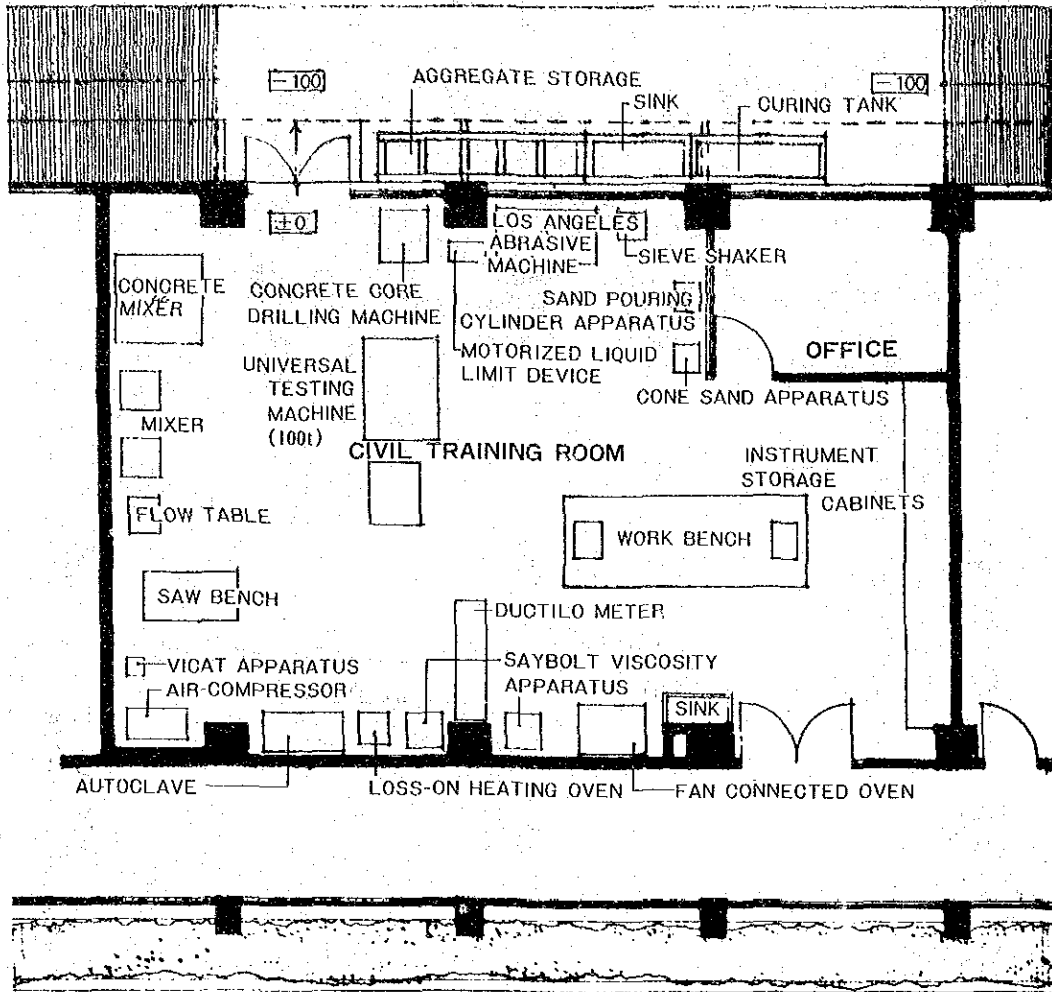
1.	Laboratory Balance .....	1
2.	Moisture Teller .....	1
3.	Mould Hardness Tester .....	1
4.	Molding Machine .....	1
5.	Permeability Tester .....	1
6.	Rotating Sand Washer .....	1
7.	Sand Blender .....	1
8.	Microscope .....	1
9.	Universal Sand Strength Test Machine .....	1

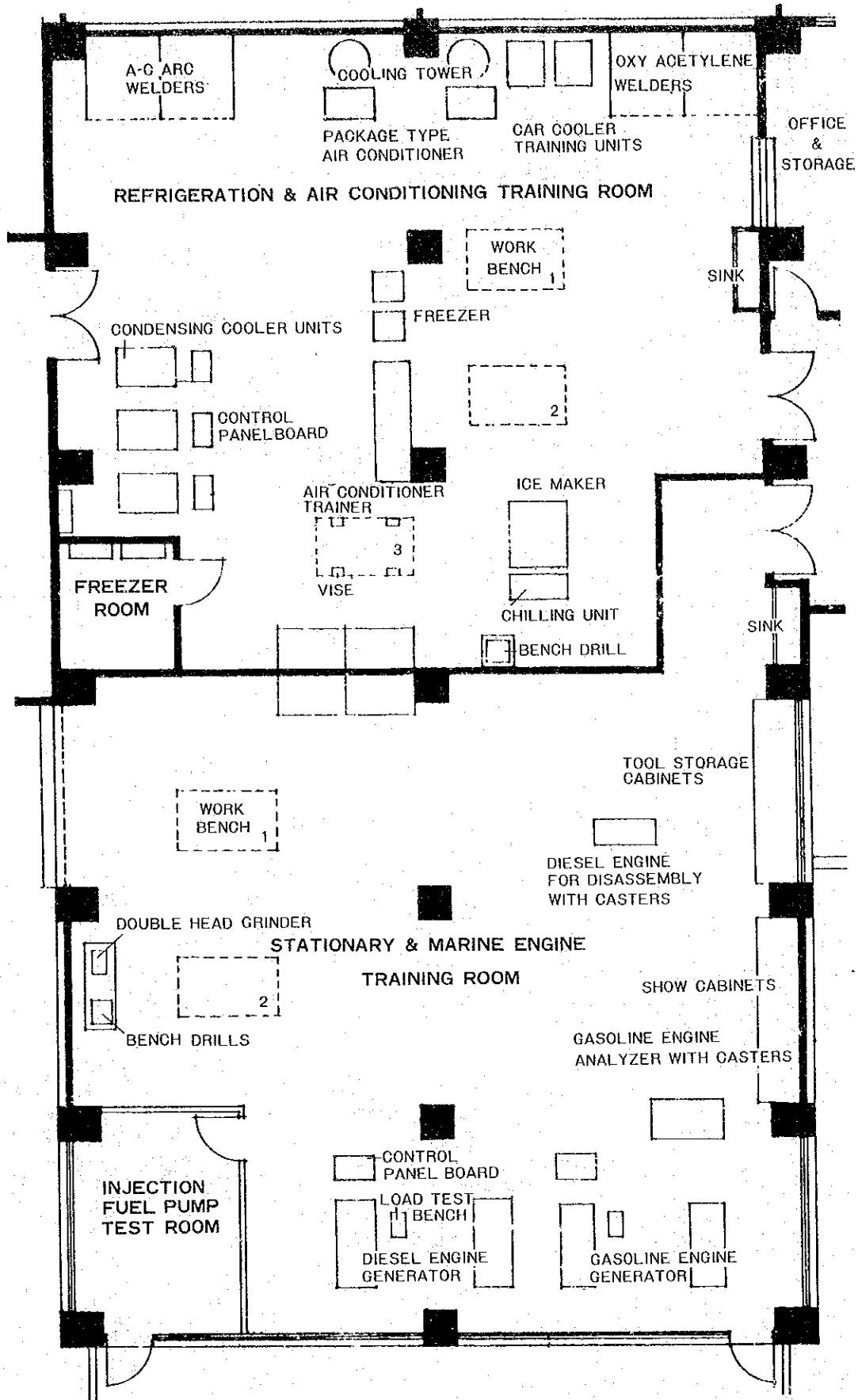
	DESCRIPTION	QUANTITY
<b>REFRIGERATION &amp; AIR CONDITIONING</b>		
1.	Condensing Cooler Unit (A) .....	1
2.	Condensing Cooler Unit (B) .....	1
3.	Condensing Cooler Unit (C) .....	1
4.	Model Laboratory .....	1
5.	Ice Maker .....	1
6.	Air Conditioner .....	2
7.	Car Cooler Training Unit .....	2
8.	Refrigeration & Air Conditioning Training Unit .....	1
9.	Bench Type Drilling Machine .....	1
10.	Double-Head Grinder .....	1
11.	Gas Welder .....	2
12.	Air Compressor .....	1
13.	Cut Model .....	3
14.	Freezer .....	1

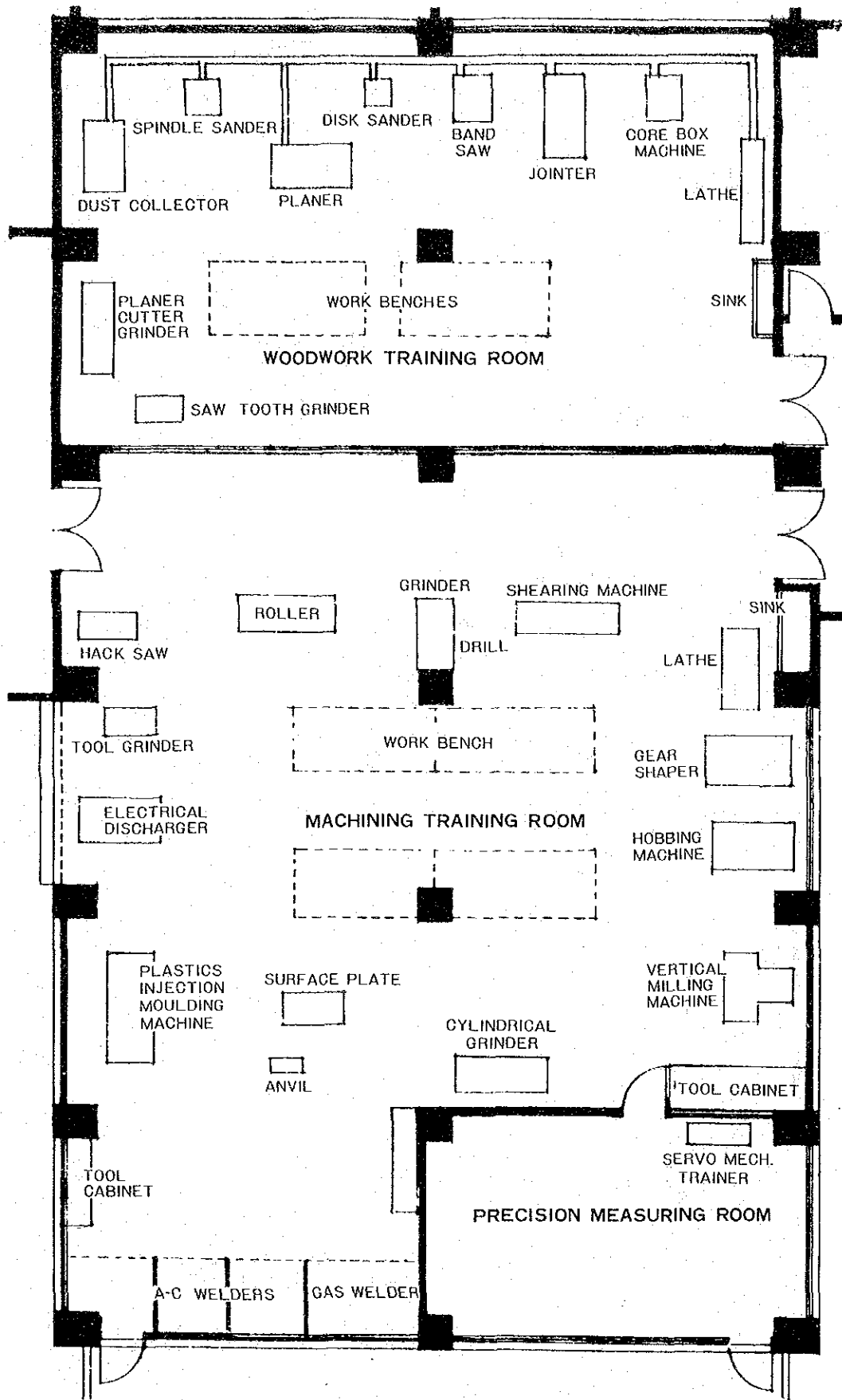
<b>STATIONARY &amp; MARINE ENGINE</b>		
1.	Boiler .....	1
2.	Diesel Engine Generator .....	1
3.	Gasoline Engine Generator .....	1
4.	Diesel Fuel Pump Test Stand .....	1
5.	Engine Analyzer .....	1
6.	Diesel Engine for Disassembling .....	2
7.	Governor Training Unit .....	1
8.	Double-Head Grinder .....	1

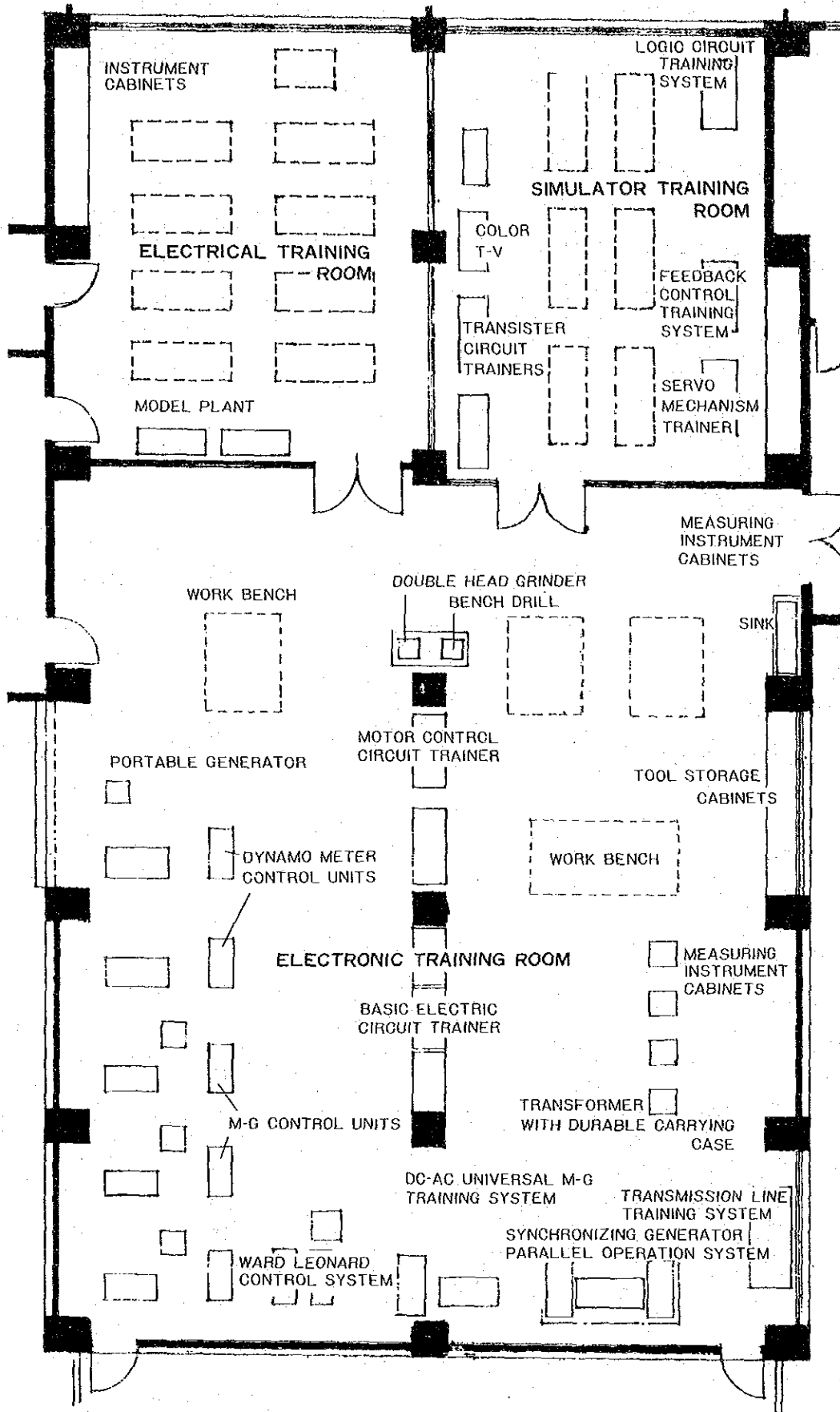
















JICA