Prime Mover	R. P. M.	Below 1000 r.p.m.
	Rated Time	More than 72 hours
	Cooling System	Radiator System 220/380V 7.4 KW
	Air Compressor	3-phase 220/380V 3.7KW
	Air Tank	150 l. with pressure switch
	Inflation Tank	100 l.
Fuel	Kind	A Heavy Oil
	Fuel Tank	600 l.
	Fuel Pump	3-phase 220/380V 0.4KW
Type of Board		Closed type
Control System		Hand Push Button System
Elevation		
Heat Insulation Plate		Ceiling and Wall of Generator Room
Ventilating Fan		3-phase 220/380V 0.75KW with automatic shutter hood

Special Specifications of Independent
Power Plant Facilities Works

1. RS Rantan Prapat

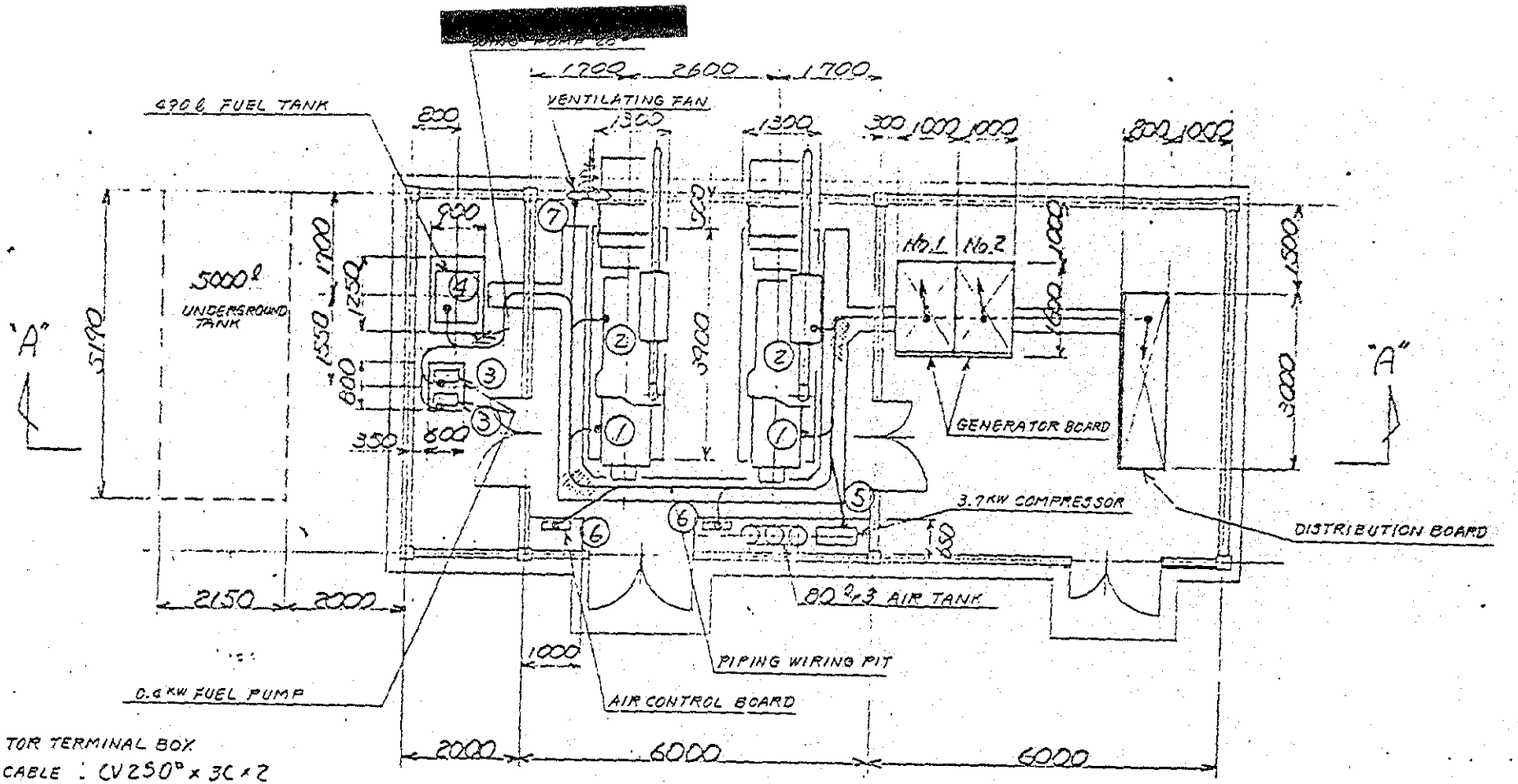
2. Matters to Apply

Matters which are not mentioned in this specifications and drawing should be according to the common specifications of Independent Power Plant Facilities Works.

3. Specifications of Independent Power Plant Facilities Work.

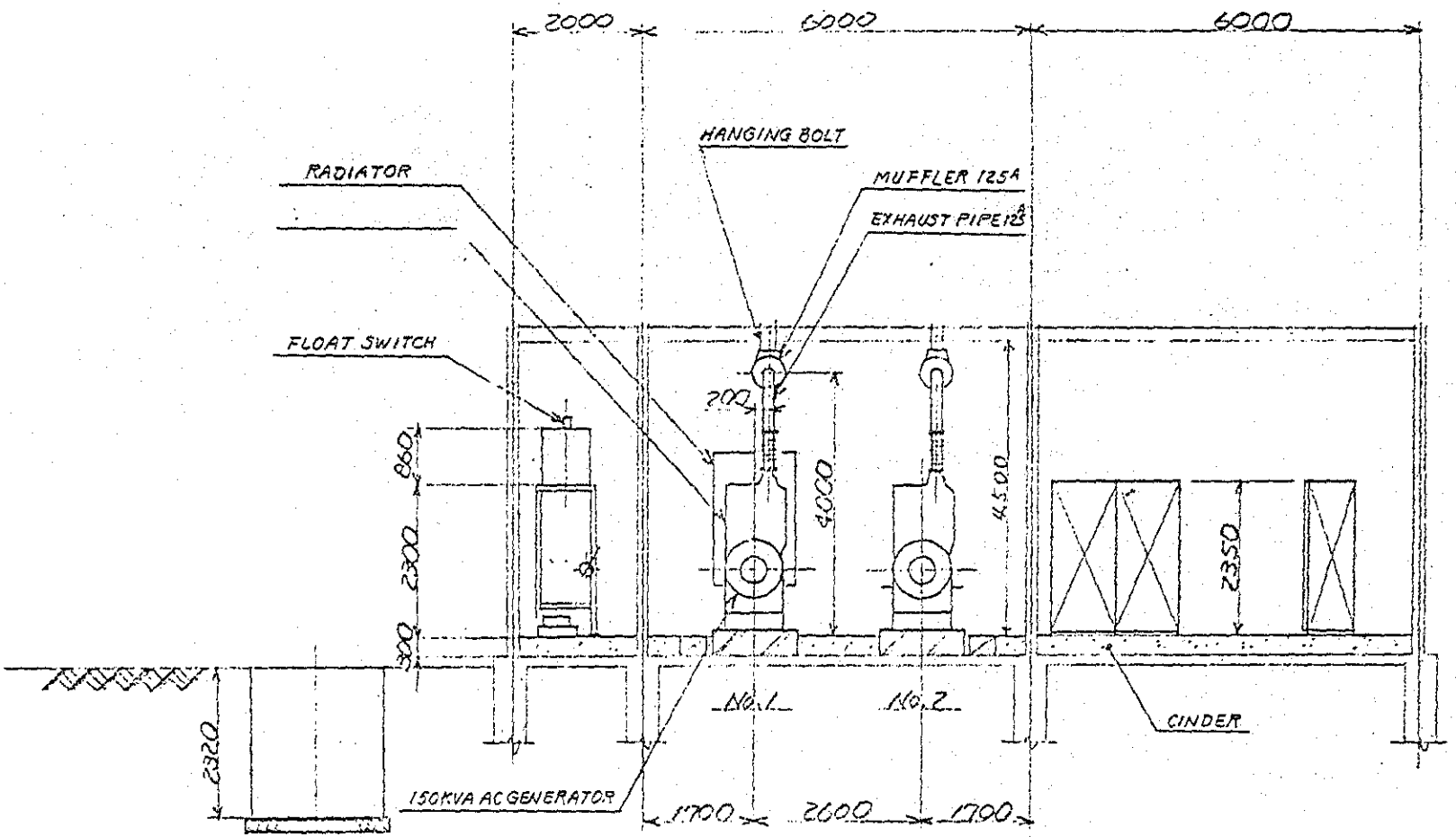
AC Generator	Type	Horizontal Synchronous AC Generator
	Rated Output	150 KVA
	Rated Voltage	127/220 and 220/380V
	Number of Phase and frequency	3-phase 4-line system 50 Hz
	R. P. M.	Below 1500 r.p.m.
	Power-factor	Above 80%
	Class of Insulation	Above Kind B
	Rated Time	Continuous Rating
	Starting Time	Within 40 seconds
	Excitation System	Brushless System
	Type	Brushless System
	Rated Output	Above 180 PS
	Starting Time	Within 40 seconds
	Starting System	Penumatic System

Prime Mover	R. P. M.	Below 1500 r.p.m.
	Rated Time	More than 72 hours
	Cooling System	Radiator System (Engine-driven fan)
	Air Compressor	3-phase 220/380V 3.7KW
	Air Tank	80 l. with pressure switch
Fuel	Kind	A Heavy Oil
	Fuel Tank	490 l.
	Fuel Oil Reservoir	5000 l.
	Fuel Pump	3-phase 220/380V 0.4 KW
Type of Board		Closed type
Control System		Hand Push Button System
Elevation		300 m
Heat Insulation Plate		Ceiling and Wall of generator room
Ventilating Fan		3-phase 220/380V with automatic shutter hood



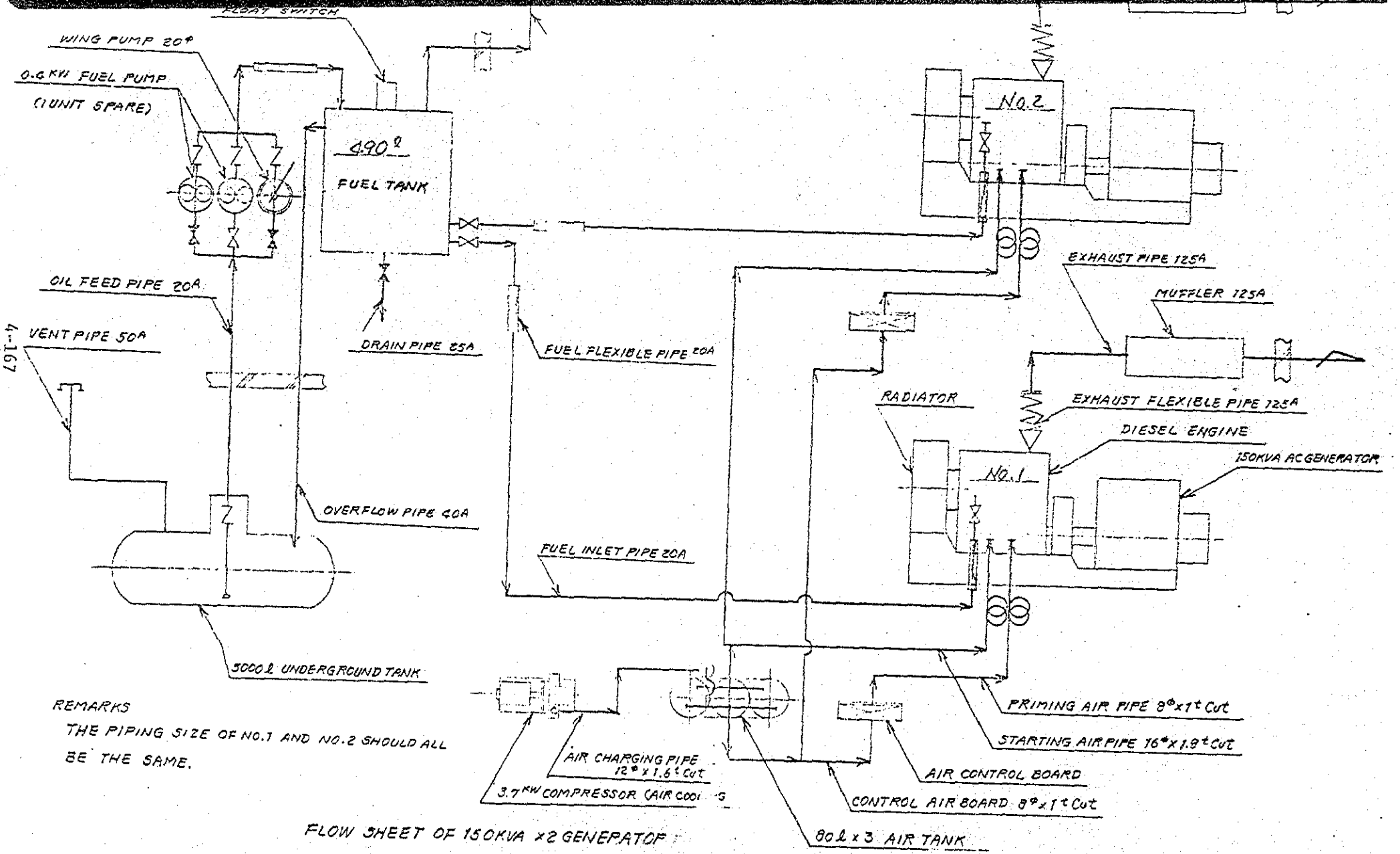
① GENERATOR TERMINAL BOX
MAIN CABLE : CV250㎟ × 3C × 2
EARTH : IV 38㎟ × 1C × 2
EXCITATION : CV 22㎟ × 2C × 2
② ENGINE TERMINAL BOX : CVV 2㎟ × 8C × 2
③ FUEL PUMP : CV 3.5㎟ × 4C × 2
④ FLOAT SWITCH : CVV 2㎟ × 6C
⑤ COMPRESSOR : CV 5.5㎟ × 4C
⑥ AIR CONTROL BOARD : CVV 2㎟ × 6C × 2
⑦ VENTILATING FAN : CV 3.5㎟ × 4C

LAYOUT OF 150KVA × 2 GENERATOR ROOM



"A" ~ "A" SECTION

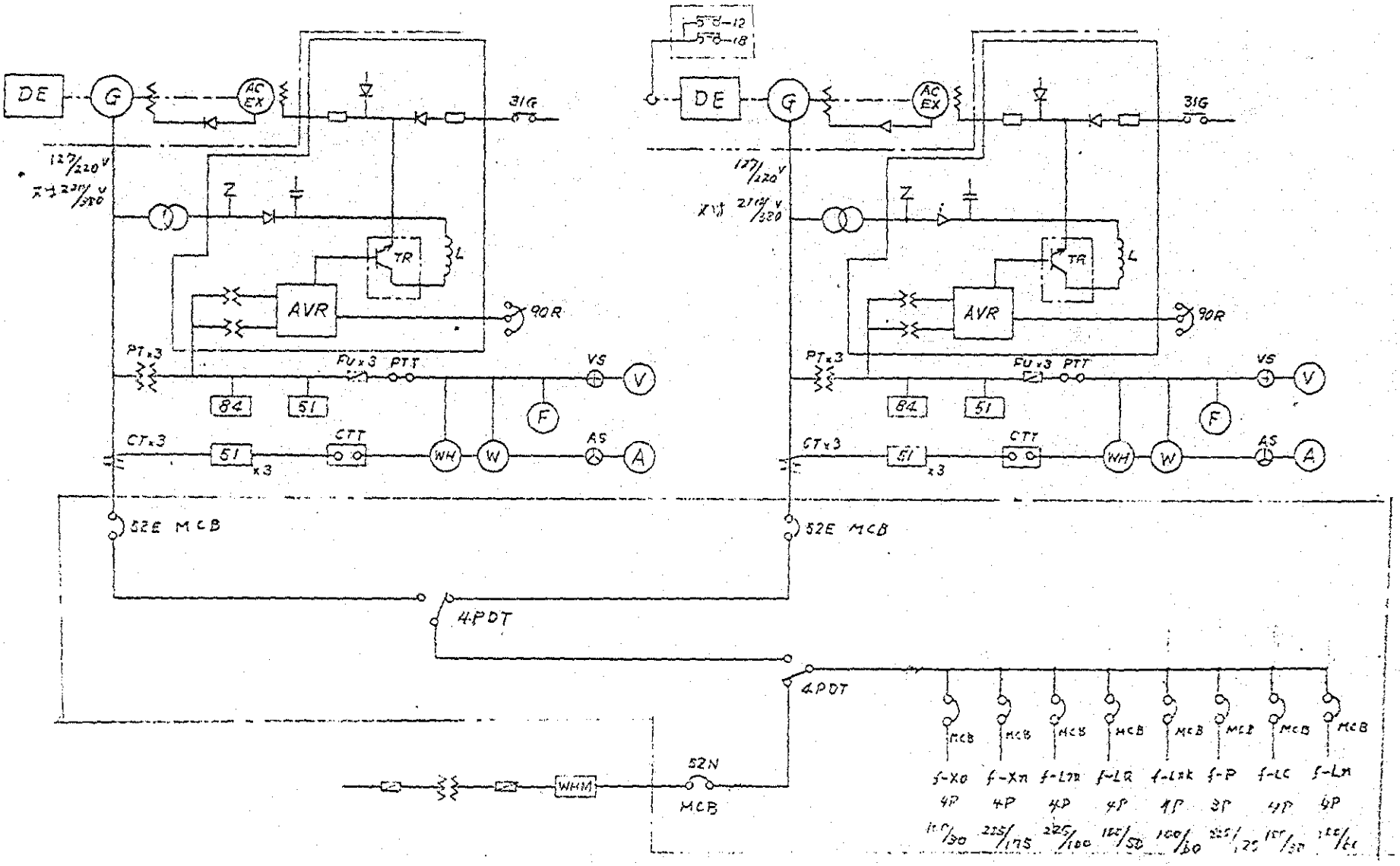
SECTIONAL VIEW OF 150 KVA x 2 GENERATOR SCALE : 1/100



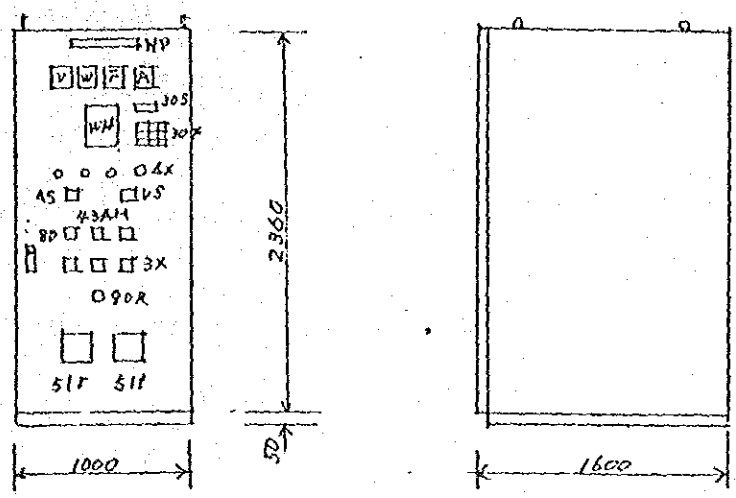
REMARKS

THE PIPING SIZE OF NO.1 AND NO.2 SHOULD ALL BE THE SAME.

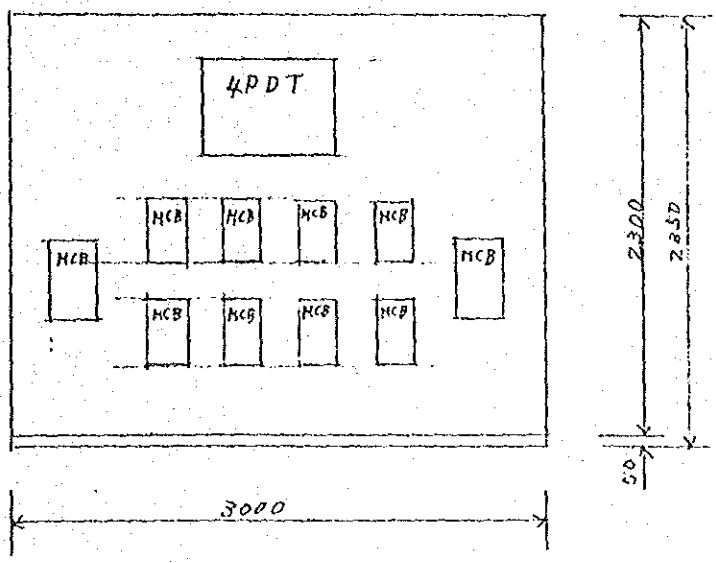
FLOW SHEET OF 150KVA ×2 GENERATOR

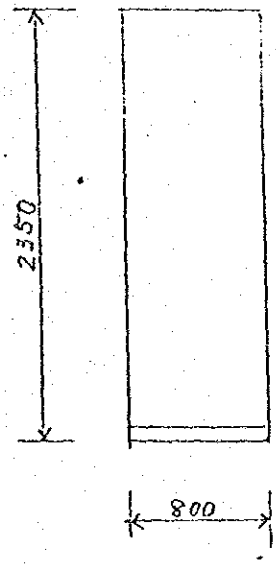


FLOW SHEET OF 150[illegible] x 2 WIRING



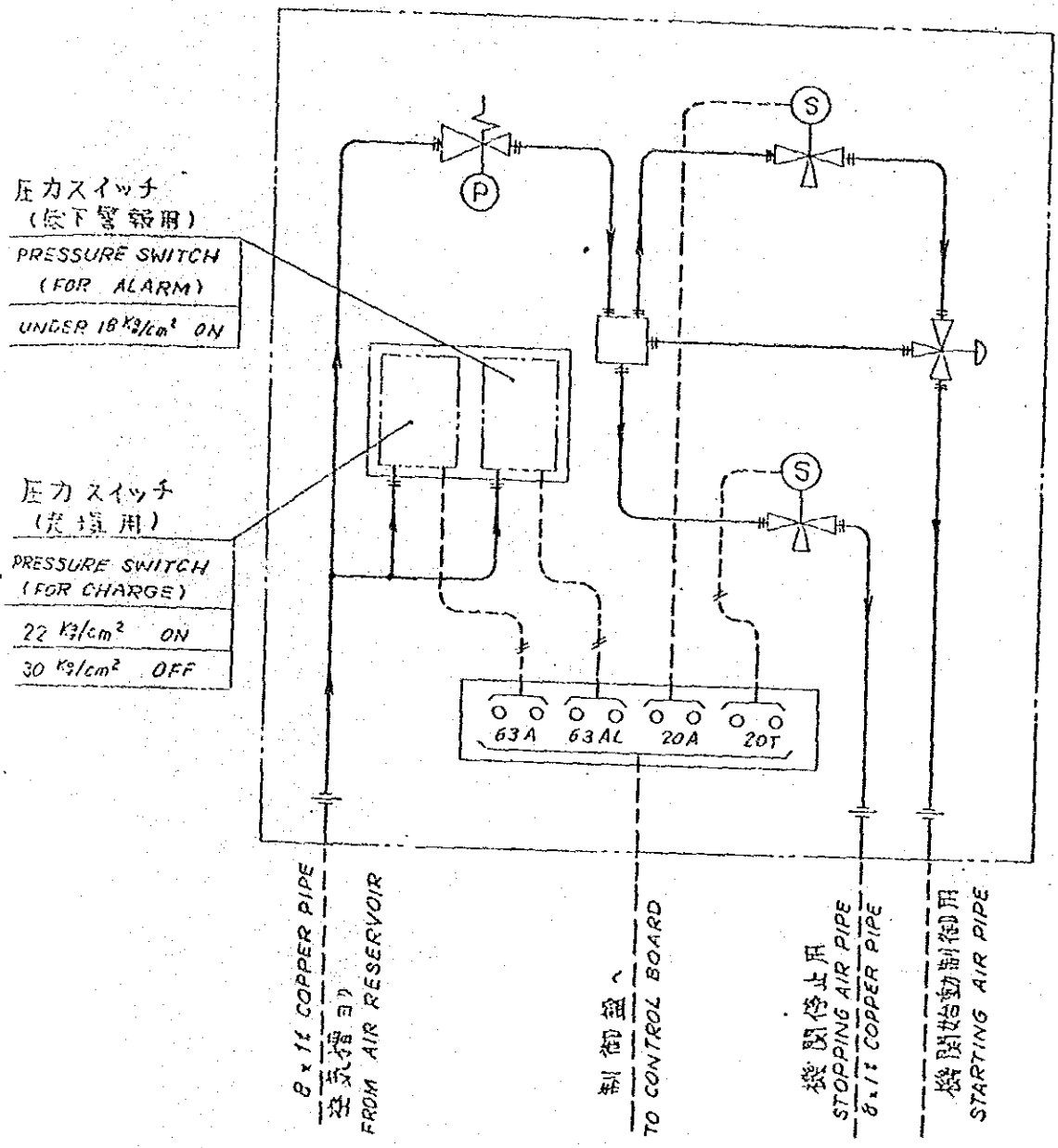
Symbol	Description
A	AC ammeter
W	Indicating Watt Meter
F	Frequency Meter
V	AC Voltmeter
WH	Electric Energy Meter
43 AM	Control Switch (Automatic-Manual)
8D	" (Control Power Source)
90R	Voltage
5/r 51t	Overcurrent Relay
3x	Push Button Switch (Lamp Test)
3x	" (Trouble Return)
3x	" (Alarm Stop)





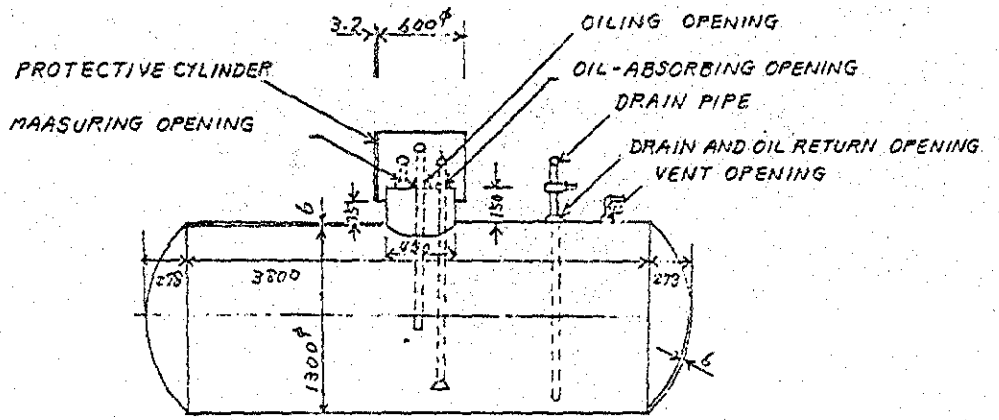
DISTRIBUTION BOARD

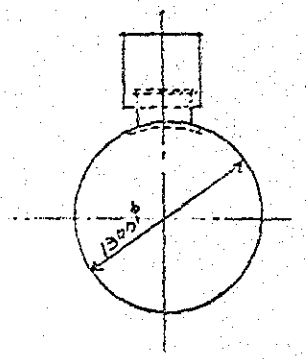
MODEL : ML · RL · UL · GL · ZL · AL



AIR CONTROL BOARD

UNIT : mm





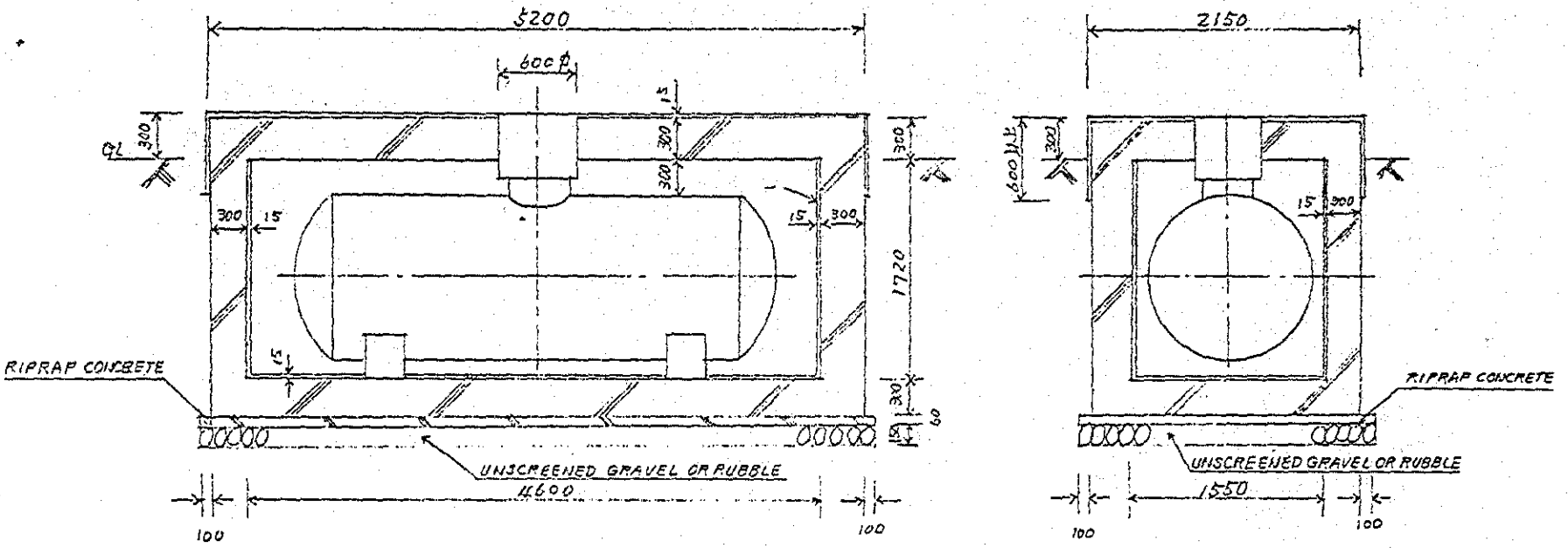
(NOTES) (1) TO BE MANUFACTURED ACCORDING TO "GOVERNMENT ORDINANCE REGARDING DANGEROUS OBJECTS" AND "REGLATIONS REGARDING DANGEROUS OBJECTS".

(2) THE POSITION OF CONNECTION OPENINGS SHOULD BE ACCORDING TO THE POSITION WHERE THE TANK IS INSTALLED.

(5000ℓ)

	32
	40
	40

UNIT : mm



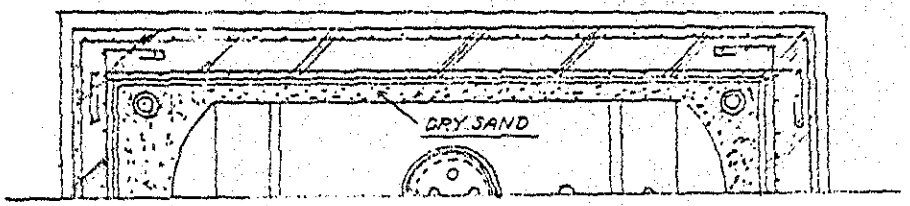
OUTSIDE OF UNDERGROUND OIL TANK AND ESSENTIALS OF ITS CONSTRUCTION

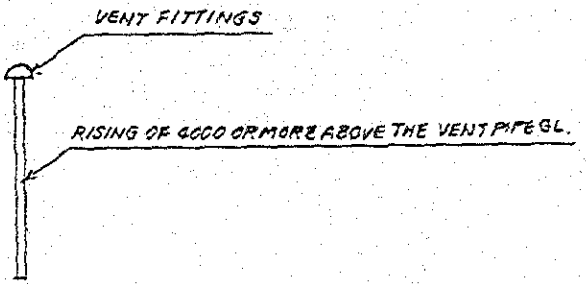
[redacted]

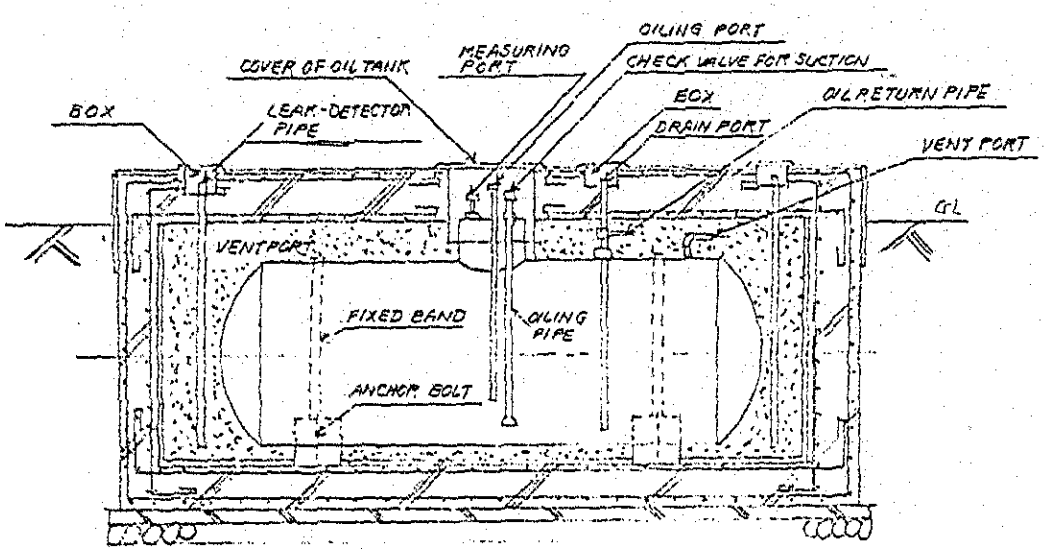
REINFORCEMENT TABLE

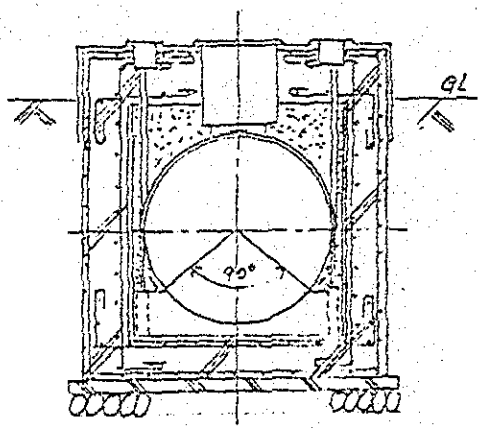
UNIT : mm

SLAB	SHORT AND LONG SIDES : 9φ - 200 ⓓ DOUBLE
WALL	D 〃









(REMARKS) (1) OPEN PORTS SHALL BE REINFORCED.

(2) EXECUTION OF WORKS SHOULD BE CARRIED IN ACCORDANCE WITH "GOVERNMENT ORDINANCE CONCERNING THE REGULATION OF DANGEROUS OBJECTS" AND "REGULATION CONCERNING THE CONTROL OF DANGEROUS OBJECTS"

INTALLATION DRAWING OF UNDERGROUND OIL TANK

4-7 Specification Common to Outside Line Construction Works

General	Scope of Application	Construction shall be carried out in accordance with this common specification, excepting the items specified in drawings and special specification.
	Supervisory Personnel	Supervisory personnel is the supervisory staff specified in construction contract.
	Execution	Construction shall faithfully be executed so that the all installations shown in drawings and specifications may function properly.
	Doubts	If the item shown in drawings is different from that specified in specifications or vice versa, or if item is not specified, or if doubt arises, consult with supervisory personnel. However, follow the instructions of supervisory personnel as to trifling matters.
	Slight change	If a slight change is needed due to the field conditions or other arrangements which does not require such design change as dimension, position or construction method, follow the instruction of supervisory personnel. However, the inevitable change of route due to the field conditions may be included in the scope of the present construction work to be carried out by following the instructions of supervisory personnel provided that the route to be changed does not exceed 30% of total extension.

Construction Schedule	(a) Construction schedule shall be prepared and approved by supervisory personnel. (b) Detailed schedule of each construction work shall be prepared if necessity arises and approved by supervisory personnel.
Drawings and Specifications	Drawings, specifications and samples necessary for manufacture or the execution of construction shall be prepared without delay and approved by supervisory personnel.
Equipment Parts and Materials	(a) Equipment parts and materials (hereinafter referred to as "line parts") shall be new ones. (b) Line parts shall pass the examination of supervisory personnel, excepting, however, minor line parts approved by supervisory personnel. (c) If the quality of line parts is not specified, those of a reasonable quality shall be used. (d) As for the examination of line parts, such tests instructed by supervisory personnel as appearance, function and property tests shall be carried out. (e) Examination to be conducted by supervisory personnel shall, in principle, be sampling inspection by item.
Inspection of Works by Titness	(a) When a part of works is completed, it shall, in principle, be inspected in the presence of supervisory personnel. (b) The function and property tests of any part of works shall be conducted in the presence of supervisory personnel.

	(c) Inspection of works Each construction work shall be inspected by supervisory personnel at each stage. (b) However, minor case out of those mentioned in (b) and (c) above may be excepted subject to the approval of supervisory personnel.
Related Works of Other Contract	As to the related construction works under after contract, consult with the persons concerned so that the related works may smoothly be carried out.
Procedures for authorities Concerned	Procedures necessary for the authorities concerned and others as to the construction works shall be taken without delay.
Control of Construction Site	(a) Construction site shall be controled strictly in accordance with the regulations concerned. (b) Efforts shall be made to prevent such accidents as fire, robbery etc. in Construction site.
Disasters and Public Hazards	Efforts shall be made to prevent disasters and public hazards in accordance with the regulations concerned.
Curing	Line parts and completed parts of works which might be fouled or damaged shall be cured by proper method.

	Report on Works	Reports on the progress of works, construction operation of workers, examination of line parts etc. shall be submitted to supervisory personnel.
	Cleaning and Sweeping	In completing works, the area surrounding the construction site shall be neatly cleaned and swept.
	Drawings of Completed Works and Maintenance Instructions	When works is completed, necessary drawings showing the states of equipments at the time of completion shall be submited. Entry shall be made on reduced scales of 1/10∿1/200 and list of main equipment parts shall be attached. Number of drawing to be submited is 1 (one), respectively; Original drawing and white photograph; Microfilm of them; Micro-reproduced drawing in 1/8 size; White photographs of the above drawing binded into A3 plate book.
Line Parts	Electrical Wires	OW wire JIS C3340 DV wire JIS C3341 IV wire JIS C3307
	Path Duct	JIS C8364
	Cable	CV Cable JIS C3606
	Control Cable	CVV Cable JIS C3401
	Porcelain Insulator	Ball insulator JIS C3832 Low-tension pin insulator JIS C3844 Low-tension anchor insulator JIS C3845

	Metal Tube	Conduit tube JIS C8305 Conduit tube fittings JIS C8330, 8331, 8332, 8333 and other qualified item.
	Pole	Concrete pole JIS A5309
	Assembling	Galvanized steel materials shall be used
Execution of Works		Execution of works shall be made in accordance with Specification Common to Electric Installation Construction Works prepared by Government Buildings Department, Ministry of Construction.

4-8) Special Specification for Outside Line Construction Works

Particulars		
	Classification of Voltage	The voltage to be used for the present works shall be as follows: Type — Voltage — Frequency 3ϕ4W type — 127-220 volt — 50 Hz 3ϕ4W type — 226-380 volt — 50 Hz
	Construction of Support	Support and Selection of Its Position (a) Kind of support Kind of support shall be as follows: Concrete pole (b) Selection of position Selection of support's position shall be as follows; (b-1) At roadside and near the positions shown in drawing. (b-2) At positions where such underground installations as gas pipe, water pipe, sewer pipe, cable etc. are not interfered with. (b-3) At positions where aerial line can easily be branched. (b-4) At positions where main line can be stretched straight. (b-5) If supervisory personnel's instruction is given, follow the instruction.
	Construction of Pole	(A) Setting (a) General case Total Length (H) — Standard Setting (H/b) 13 m — 2.2 m or more

(b) On slope

In case of slope, the standard mentioned in (a) above shall apply correspondingly and in addition, base shall be reinforced with concrete.

(c) On weak ground

On the ground having a small resistance such as Bog-land, proper increase shall be made.

(d) On rocky ground where excavation is extremely difficult, setting may be about 2/3 of the standard setting and reinforced with concrete basing and stay.

(B) Excavation of Pole-Erecting Hole

(a) Pole-erecting hole shall not be dug larger than necessity taking into consideration the size of pole, setting, posture of pole etc.

(b) If there are the following articles in the place where pole is to be erected, special attention shall be paid to them:

(1) crops (2) buildings

(3) garden-trees (4) underground installations

(C) Sort of Excavation

(a) Round hole

Standard dimension shall be as follows:

Length of Pole(m)	Size of Hole(mm)	Depth of Hole (m)
13	400	2.25

Remark : If the ground is hard and not damaged, guy anchor is not required.

(D) Installation of Earthing Conductor

$8mm^2$ or more of insulated wire shall be installed at fixed place on ple and earth plate shall be equiped with earthing of the third kind.

(E) Direction of Concrete Pole

On a road, concrete pole shall be erected so that the lower step bolts may be parallel to the road or line and the pole plate perpendicular to the road or line.

(F) Installation of Guy Anchor

Guy anchor shall be installed excepting where round hole is excavated.

(a) Direction of guy anchor

(a-1) In case of straight pole, guy anchor shall be installed zigzag.

(a-2) In case of curved line pole, branch pole and terminal pole, guy anchor shall be installed zigzag and in case of a pole erected at the place where tension is great, a clamp guy anchor shall be installed.

(a-3) In case of H pole and triangle pole, common clamp guy anchor shall be installed.

(G) Operation after Erection of Pole

(a) Step bolt

The lowest step bolt shall be more than 2m and less than 2.5 m high above the ground surface.

Additional step bolt shall be installed at every 450 mm.

(a-1) When step bolt is installed, insulated packing shall be first installed and then step bolt installed.

Assembling

(A) Position and Interval of Arm

(a) Position of arm

(a-1) The uppermost arm shall be 250 mm from the top of pole.

(a-2) The arm for higher volt shall be at the upper row.

(a-3) In case of same volt, the arm for the distribution to farther distance shall be at the upper row.

(a-4) The supporting point of the arm for a line having more than 80 mm^2 of size shall be 1500 mm or less from the top of pole.

(b) Interval of Arm

The center distance when line arm is fixed to supporting structure shall be as follows:

Classification	Single Pole		H. Triangle Poles	
	Straight Pole Terminal Pole	Angle Pole	Straight Pole Terminal Pole	Angle Pole
Between low-tension	600 mm	900mm	750mm	900mm

(B) Standard Assembling

(a) The assembling of line shall be made on the following standard.
A core fixing assembling with low tension arm, having the following dimension;

Single Pole	1500x75x2.3 or more (mm)
H, Triangle Poles	2700x75x3.2 or more (mm)

(b) Classification of pole shall be as follows:

Step Number of arm	Structure of Pole
1 ∿ 5	Single pole
6 ∿ 8 or more	H pole or triangle pole

(C) Arm

(a) Classification in use of arm
Line arm shall be used depending upon the voltage and the condition of use as follows:

Assembling Method	Number of Line	Low Tension
Core fixing	2 ∿ 3	1500 x 75 x 2.3
"	4	"
"	6 ∿ 8	H pole, 2700 x 75 x 3.2, clamp arm

(b) Classification of single clamp arm

(b-1) In case line is anchored

Arm	General Case
Low Tension 1500	22 mm^2 or more
" 2700	clamp-type for all

(b-2) In case 6 lines are anchored with 2700x75x75° arm, reinforcing plate shall be used.

(c) Fixture of arm

(c-1) Fixing side of arm

Arm shall be fixed to support as follo...

Type	Remarks
General	at load side
Branch (anchor)	at opposite side to tension

(c-2) Lower arm shall be on the same side as upper arm.

(c-3) Fixing method of arm

Fixing method to support shall be as shown in the following table:

Condition of Support	Fixing Method
Straight road pole, branch pole, terminal pole	perpendicular to line

(D) Fixing Method of Binding Bolt and Arm-Tie

(a) Binding bolt

Clamp arm 1500 --- 2 places

Clamp arm 2700 --- 4 places

(b) Arm-tie

Position: At greater load side

Number: 1 for single arm.

2 for clamp arm

Method: Arm-tie washer and variable arm-tie band are used.

(E) Porcelain Insulator

(a) Classification in use of porcelain insulator

Classification of use shall be as follows.

Class	Insulator to be Used				
	Type			Color	
	through line curb line jumper line	anchor branch anchor	lead-down line lead wire	tension side	earthing side
127-220V 220-380V 3-phase 4-line common to lighting & power	low tension large pin insulator	low tension anchor insulator	low tension large pin insulator	White brown	blue

(F) Step Bolt

(a) Driving of bolt

Rotating step bolt and upper step bolt shall be driven at 45°.

	(G) Pole plate (a) Fixture of pole plate A pole Plate on which Company's abbreviation, number of supporting structure, date of construction and total length of supporting structure are printed shall be fixed to the supporting structure. (a-1) Fixing height shall be 2.5 - 3 m. (a-2) Pole plate shall be fixed with 2 bolts.
Construction of Stay	(A) Installation of Stay (a) Stay shall be installed at uneven tension, angle pole, terminal pole, long span and other necessary places as well as in an area where strong wind prevails. (b) Stay shall be installed so that traffic may not be interfered with. (c) Type of stay (c-1) Anchor stay It shall be installed for anchor, branch, curve line and other supporting structure which is always subject to tension. (c-2) Longitudinal stay It shall be installed at every 6 spans. (c-3) Side anchor stay It shall be installed at every 3 spans.
	(B) Sort of Stay (a) Ordinary stay (a-1) Angle between support and stay shall, in principle, be maintained at 30°.

(a-2) Strip number of stay shall be 7/40 galvanized iron wires.

(a-3) Anchor of stay shall be driving anchor, which must be driven into theground by less than 1.5 m.

(a-4) Ball insulator shall be fixed at the place more than 2.5 m above the ground surface.

(a-5) Anchor bolt of stay shall have a sufficient thickness and be wrapped with an anticorrosive tape over each 300 mm or more above and under the ground surface.

(a-6) The bending part of stay shall be protected with wire thimble, clamped at 3 points with suitable wire clip and its ends shall be found 5 times or more with 1.6 mm or more galvanized wire.

(a-7) Fixing point of stay to the top of pole shall, in principle, be less than 1.5 m from the top.

(b) Horizontal stay

It is a stay for which stay pole is used and consists of common part and additional stay. It is used where ordinary stay cannot be installed due to the condition of the ground.

(b-1) Items provided for in (a) above shall apply to the details of horizontal stay.

(b-2) Stay pole shall be more than 5 m high on road and building site and 13 m high in case stay passes over a building so that stay may be installed sufficient above the ground surface.

(c) Common stay

It is a stay common to both supporting structures and is used when they are comparatively near to each other.

(c-1) Items provided for in (a) above apply to the details of common stay.

(c-2) This stay shall be same high as in (b-2) above.

(d) Y stay

It is constructed with two ordinary stays which are fixed to the upper and lower points or right and left-hand points of supporting structure and tied into a bundle at a suitable point above the ground to make a Y-shape. This stay is used for such a pole as having many line arms or being subject to a large tension.

(d-1) Y stay is fixed to H pole and single pole having 4 stage or more assembling.

(d-2) Items provided for in (a) above shall apply to the details of this stay.

(d-3) Guy anchor shall be installed 1.8 m or more deep under the ground.

(e) Materials of stay

(e-1) Following materials shall be used for stay:

Stay strip \ Sort	Sort of iron and steel wire	Anchor driven	Stay guy anchor	Anchor bolt	Stay band	Stay clip	Stay thimble	Turn-buckle
7 or less	7/4.0 iron wire	No.9	No.9	No.9	No.9	No.9	Large	No. 9
	4.0 iron wire							

(e-2) Steel wire to be used shall be galvanized steel wire of 1st kind.

Construction of Pole Brace

(A) Fixture of Pole Brace

Pole brace is used when longitudinal stay or side anchor stay is needed, but it cannot be installed.

(a) Fixing position of pole brace to pole

It shall be fixed in the direction of tension and in principle, at lower position from line arm.

(b) Fixture of pole brace to pole

It shall be fixed with 2 variable arm-tie bands, 2 bolts and 1 set of pole brace fittings.

(b-1) Angle of pole brace shall be in the range of 20° ~ 25°.

Construction of Electric Wire

(A) Height of Electric Wire Above Ground

The height of aerial wire shall be 5.0 m or more above the ground.

(B) Clearance of Electric Wire

Separation of aerial wire from others shall, depending upon the sort of electric wire, voltage and relative position, be more than the following value (m).

(a)	Sort of Electric Wire	Low tension
Upper	bare wire, OW wire vinyl wire	2.0
Side	OW wire	1.2
Lower	Vinyl wire	0.8

(a-1) Separation of aerial weak current wire from upper approach and crossing shall be more than 0.6 (low tension).

(C) Position of Neutral (Earthing) Conductor

In case of common system for lighting and power (4 wire drawing), neutral conductor shall be gathered at one side of supporting structure.

(D) Classification of Passage and Anchor of Electric wire

(a) Aerial wire shall generally be through line.

(b) The method to pull aerial wire straight shall be two methods of anchor and split anchor.

(b-1) In case of use of anchor
For wire at terminal or branching point
For curved wire having 40° or more of horizontal angle.

(b-2) In case of use of split anchor
For the connection of different wires in strength and thickness.

Before and after angle pole.

(E) Looseness

Aerial wire shall be provided with a looseness corresponding to span, season and wind load.

(a) Looseness Table

Unit: m

Span	30	35	40	45	50	55	60
Season	0.26	0.35	0.45	0.58	0.71	0.86	1.02

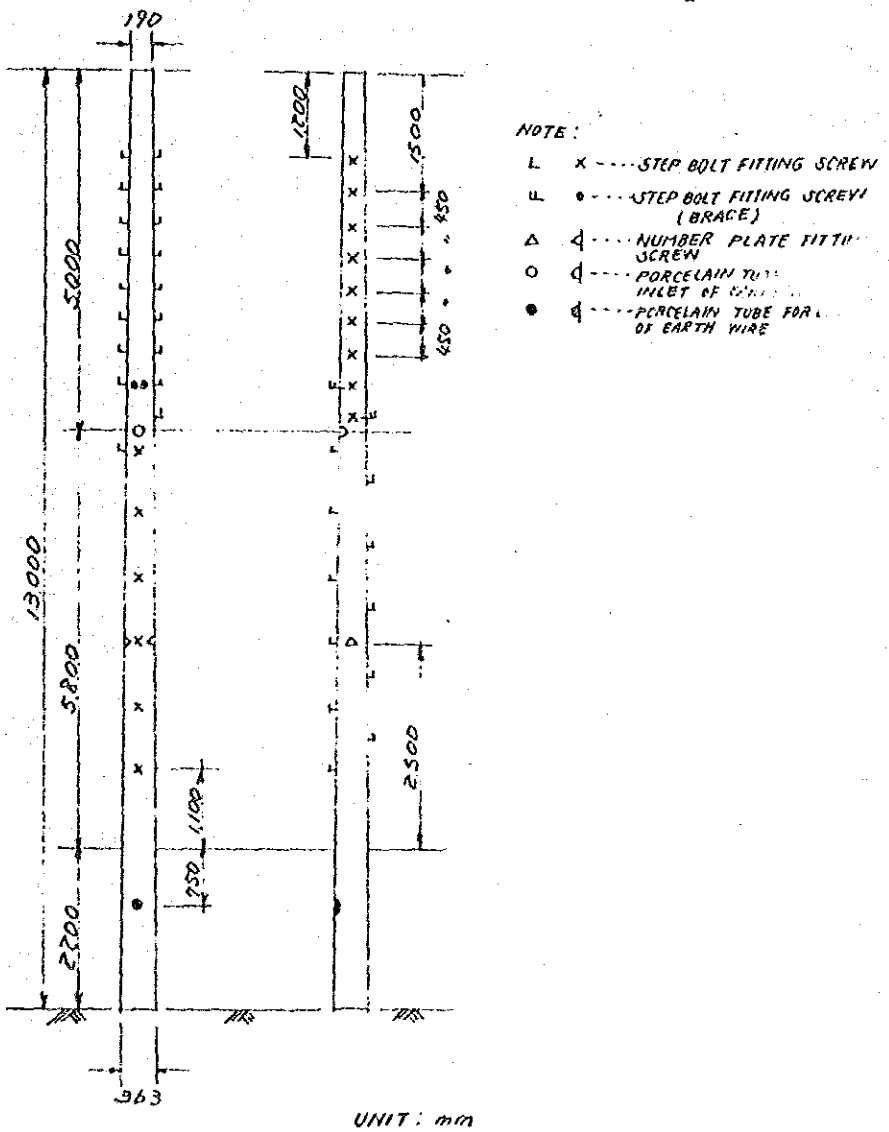
Main Line Parts

(A) Concrete Pole (Centrifugal Reinforced Concrete Pole)

(a) Dimension, Design Load and Weight

Length (m)	Tip diameter (mm)	Design load (kg)	Weight (kg)	Root diameter (mm)
13	190	500	1070	363

(b) Drawing to show fixture of fittings



(B) Arm; Dimension and Weight

Finished Dimension (mm)	Angle (mm)	Weight (kg)	Parts Dimension (mm)
1500 arm	75	6.8	2.3
2700 arm	75	18.1	3.2

(C) Electric Wire (OW wire)

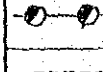
Conductor		Vinyl insulator's thickness (mm)	finished outer diameter (mm)	Resistance (20°) Ω/km	Tensile load (kg)	Weight (kg/km)	Allowable current A
Sectional area (mm^2)	Structure (mm)						
14	7/1.6	1.0	6.8	1.35	574	160	91
22	7/2.0	1.2	8.4	0.849	889	250	122
30	7/2.3	1.2	9.3	0.642	1160	320	145
38	7/2.6	1.4	11	0.502	1480	410	170
50	19/1.8	1.4	12	0.394	1960	520	201
60	19/2.0	1.4	13	0.313	2410	630	231
80	19/2.3	1.5	145	0.237	3160	820	276
100	19/2.6	1.5	16	0.185	4010	1030	322

(D) Cable (600 V 4C CV Cable)

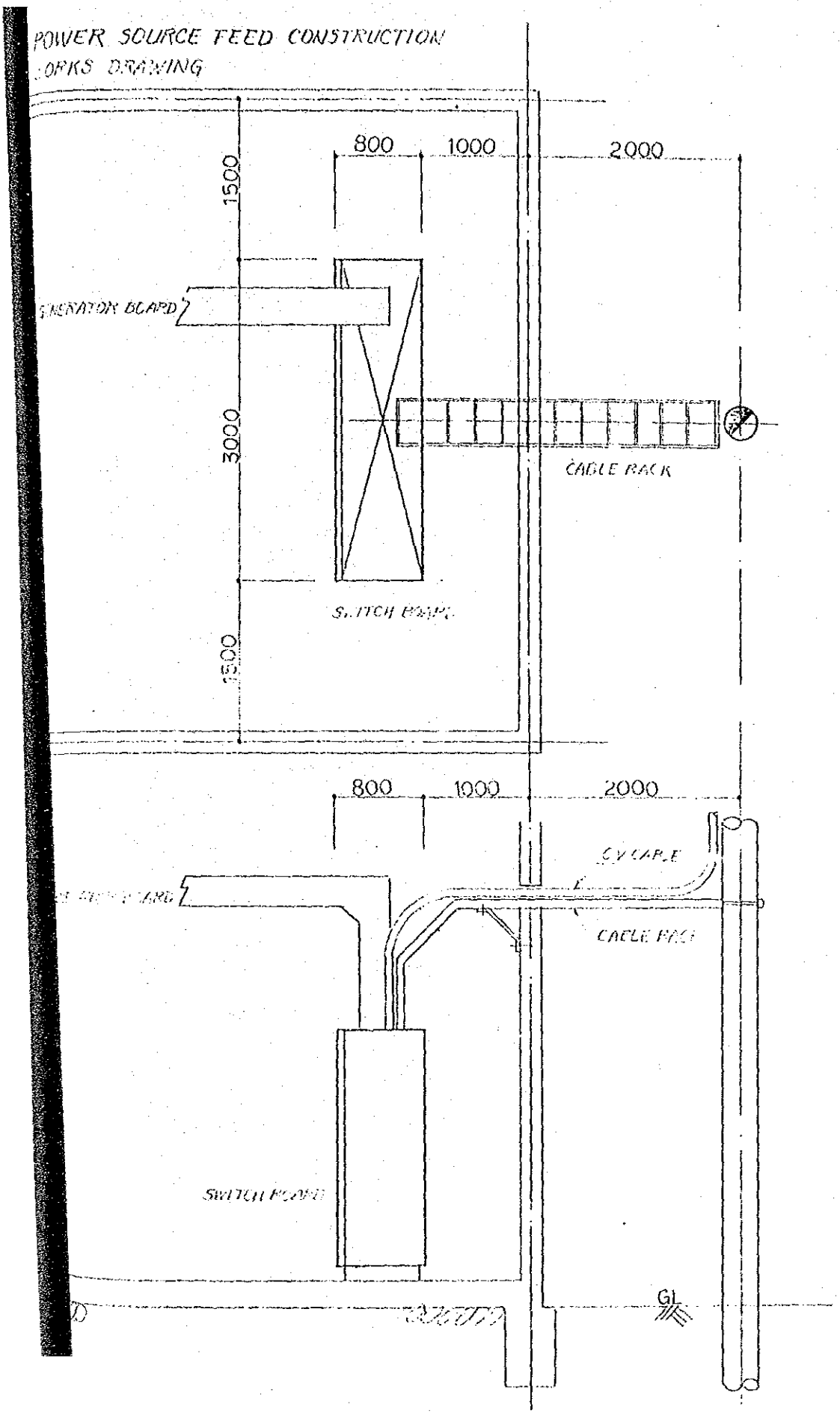
Conductor		polyethylene insulator's thickness (mm)	sheath's thickness (mm)	finished outer diameter (mm)	resistance (kg/km)	weight (kg/km)	allowable current (A)
Sectional area (mm^2)	Structure (mm)						
14	7/1.6	1.0	1.5	20	1.33	765	60
22	7/2.0	1.2	1.6	24	0.84	1150	80
38	7/2.6	1.2	1.8	29	0.497	1830	109
60	19/2.0	1.5	2.1	37	0.309	2860	144
100	19/2.6	2.0	2.5	47	0.184	4790	200

* As to the Cables other than those shown in above table, JIS standard shall apply.

Notes

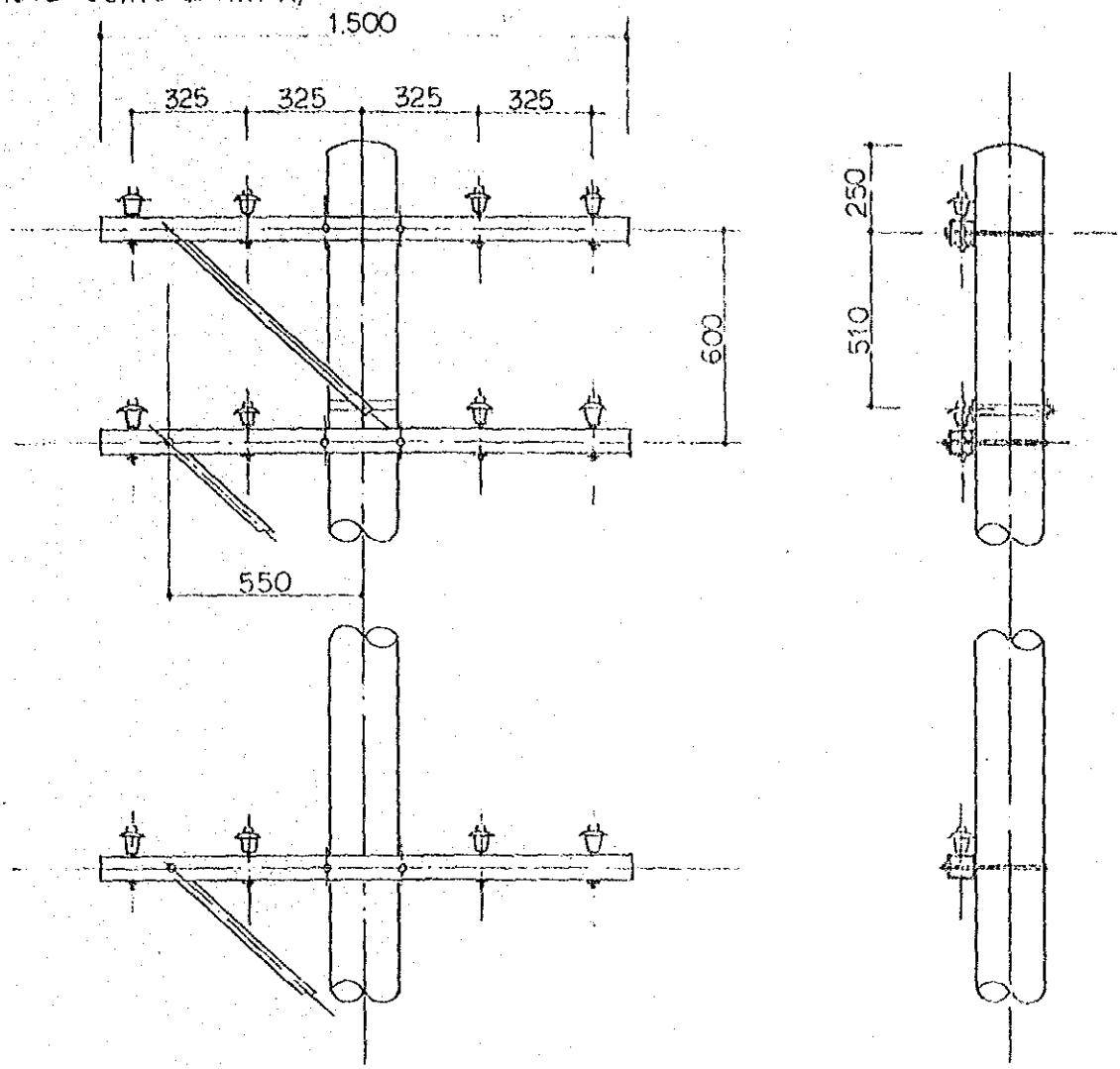
Mark	Name	Remarks
	Proposed building's site	
	Concrete pole	
	stay (usually, Y-stay)	
	stay (common, horizontal)	
	pole brace	
	aerial wiring	
	cable rack wiring	
OW	OW wire	
CV	600 V CV cable	
f-OOO	main line system	
NO	principal name of buildings	
ND	name of basic assembling drawings	

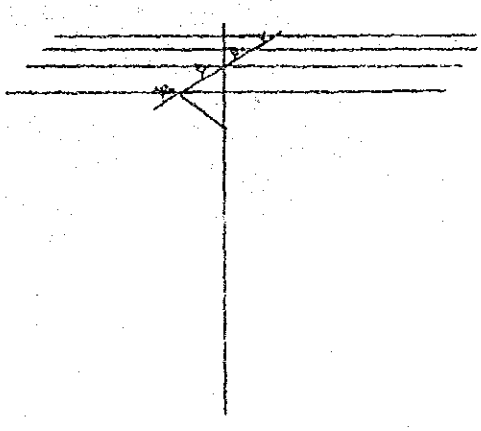
Standard Drawing


POWER SOURCE FEED CONSTRUCTION
WORKS DRAWING
800
1000
2000
1500
3000
1500
CABLE RACK
800
1000
2000
CV CABLE
CABLE RACK
GL

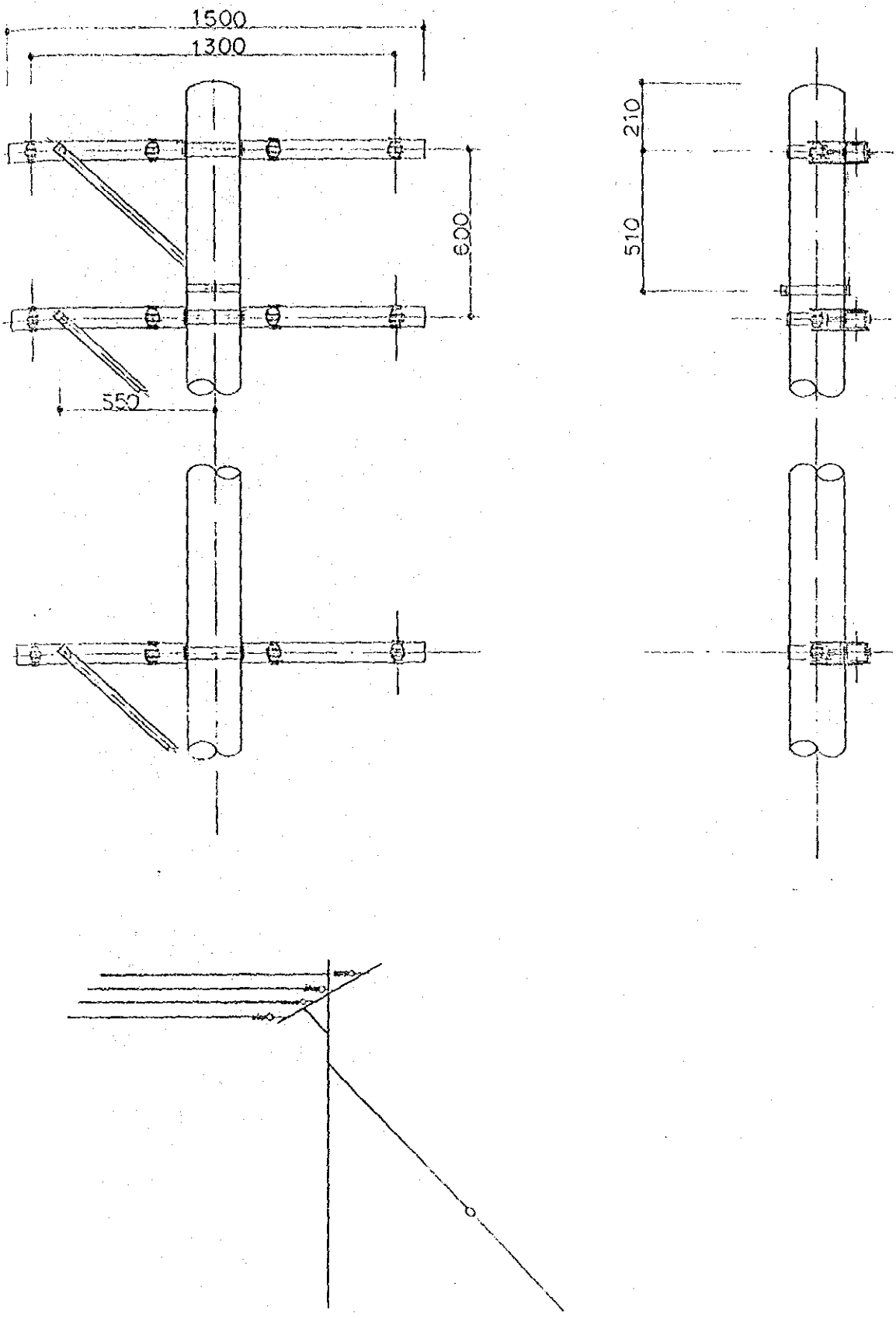
STANDARD ASSEMBLING DRAWING

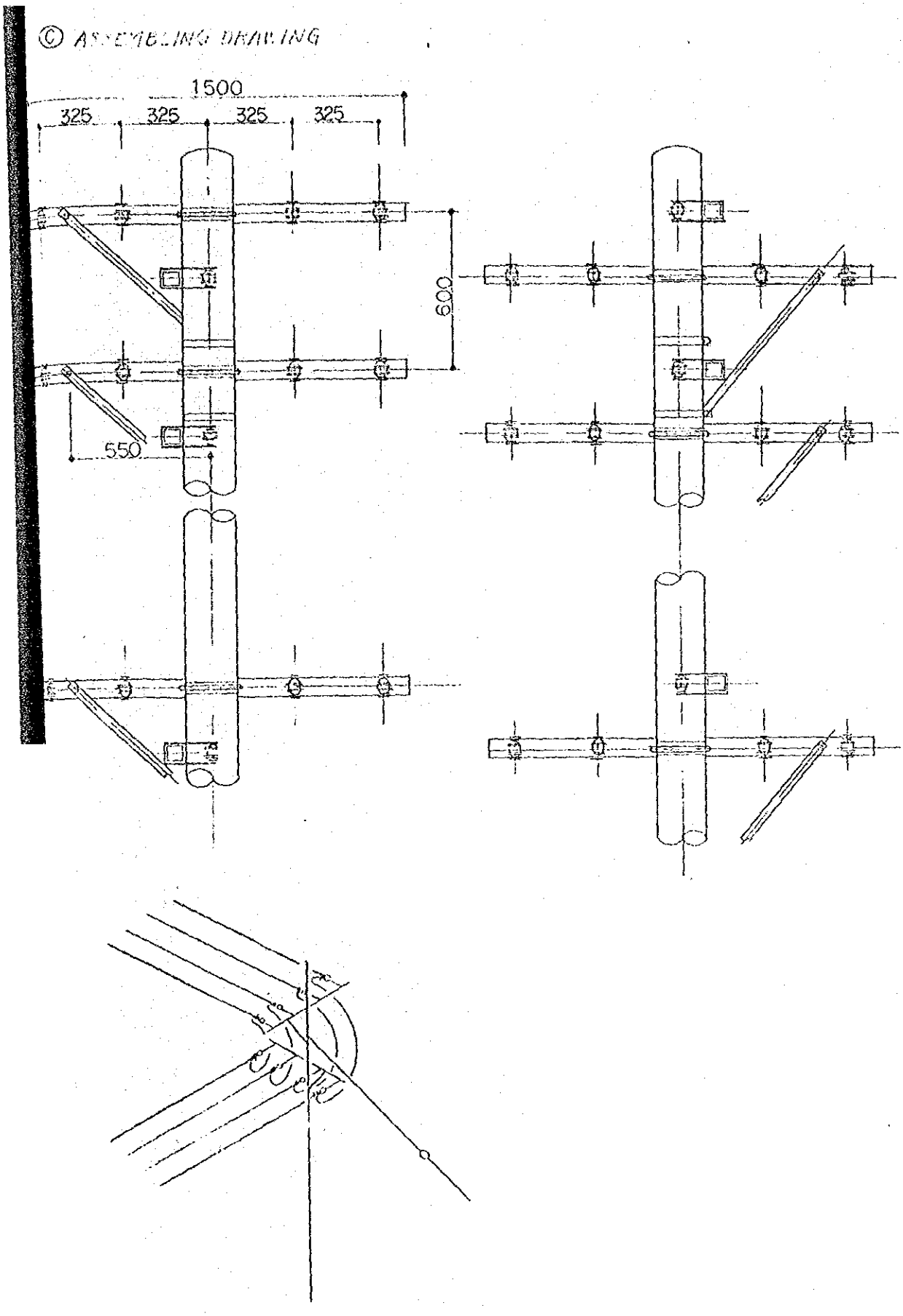
Ⓐ ASSEMBLING DRAWING



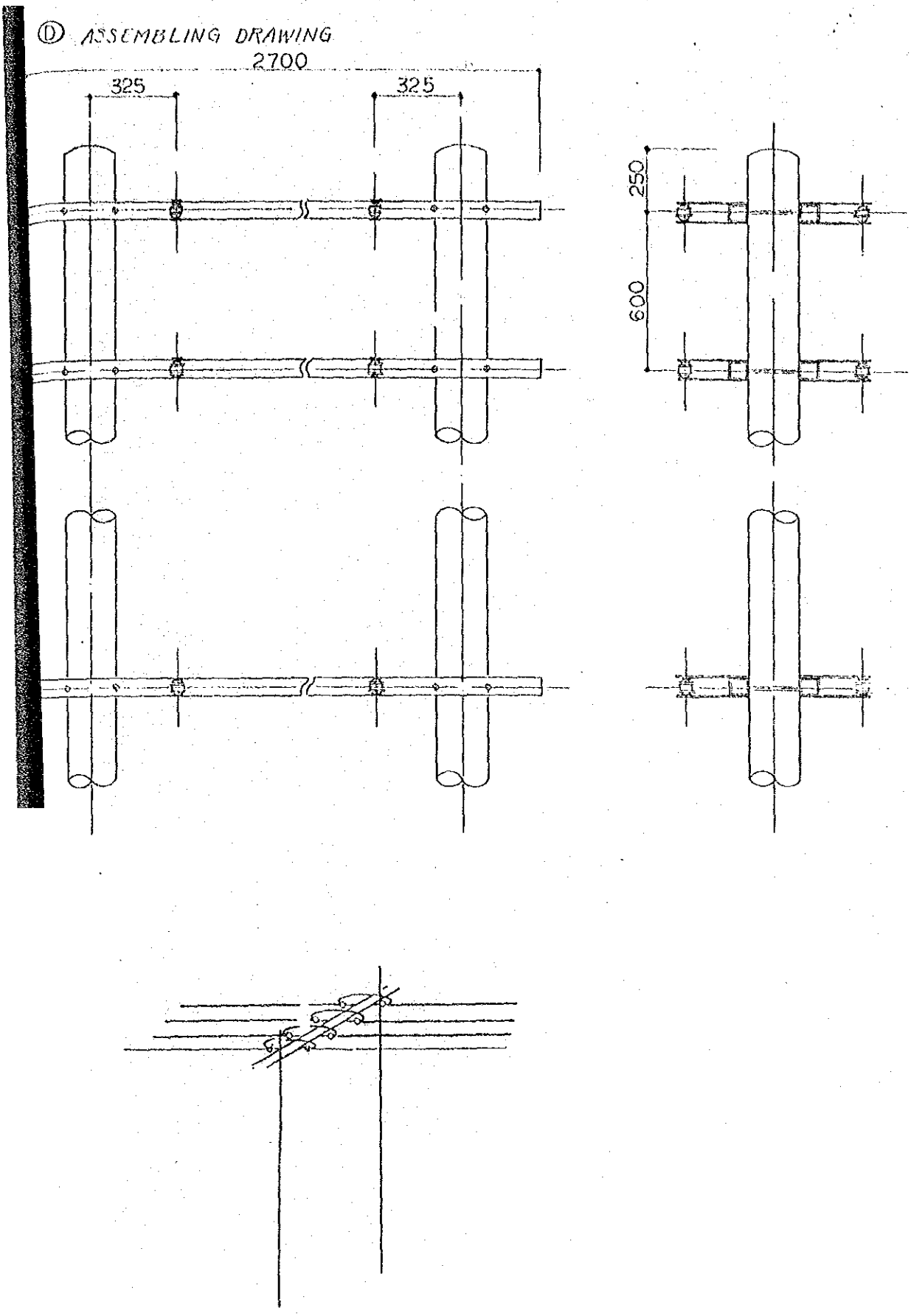


Ⓑ ASSEMBLING DRAWING

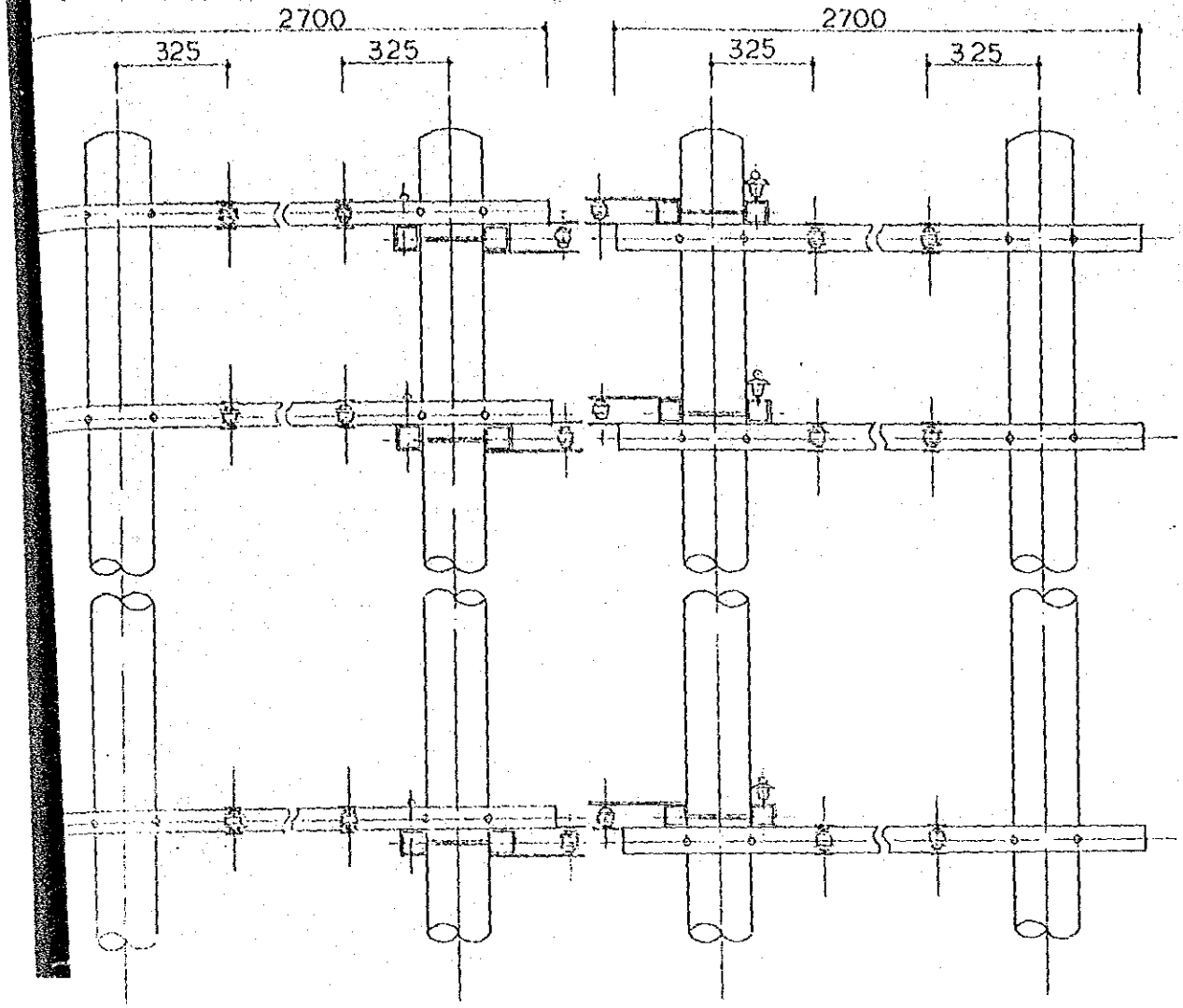


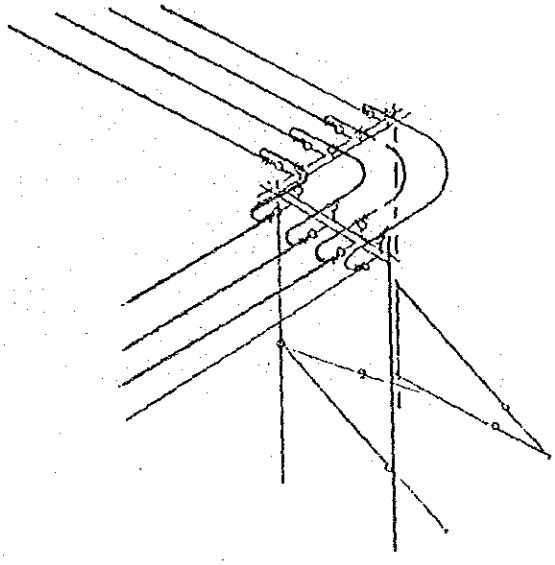

© ASSEMBLING DRAWING
1500
325
325
325
325
600
550

Ⓓ ASSEMBLING DRAWING

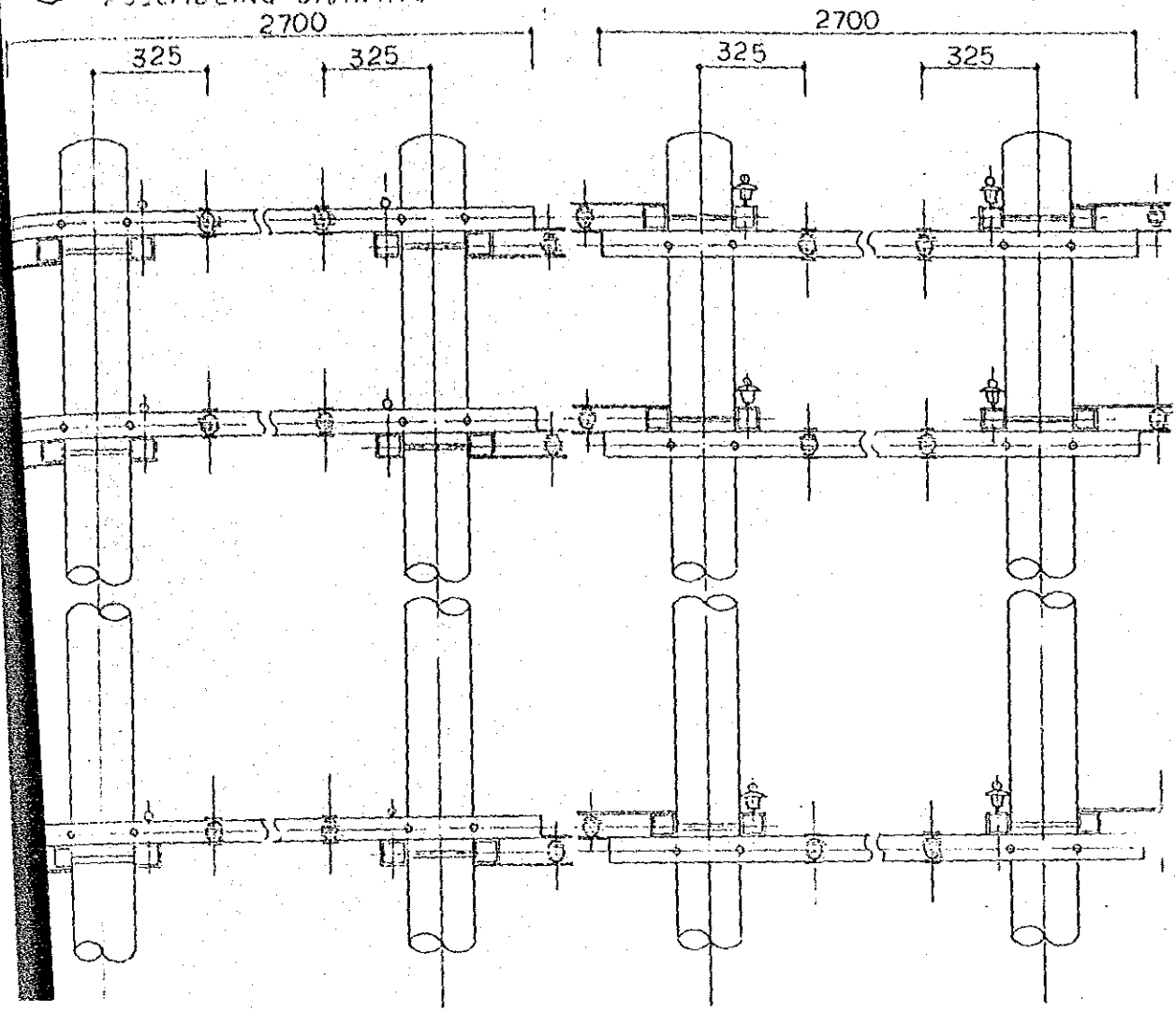


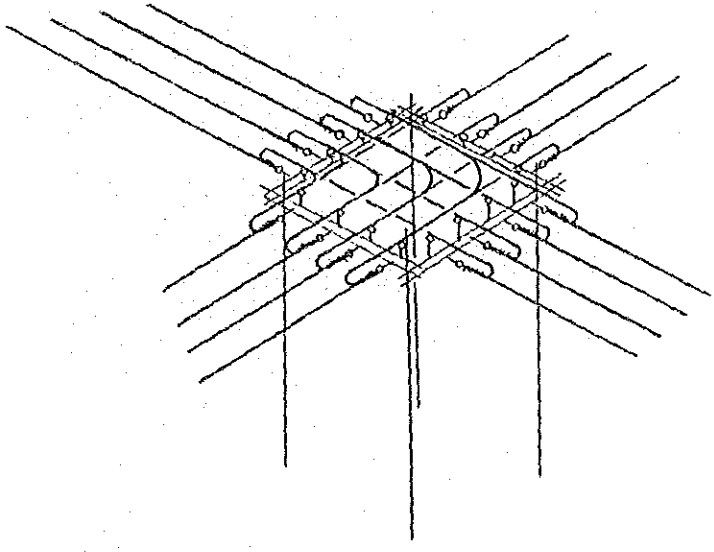
Ⓔ ASSEMBLING DRAWING





Ⓕ ASSEMBLING DRAWING

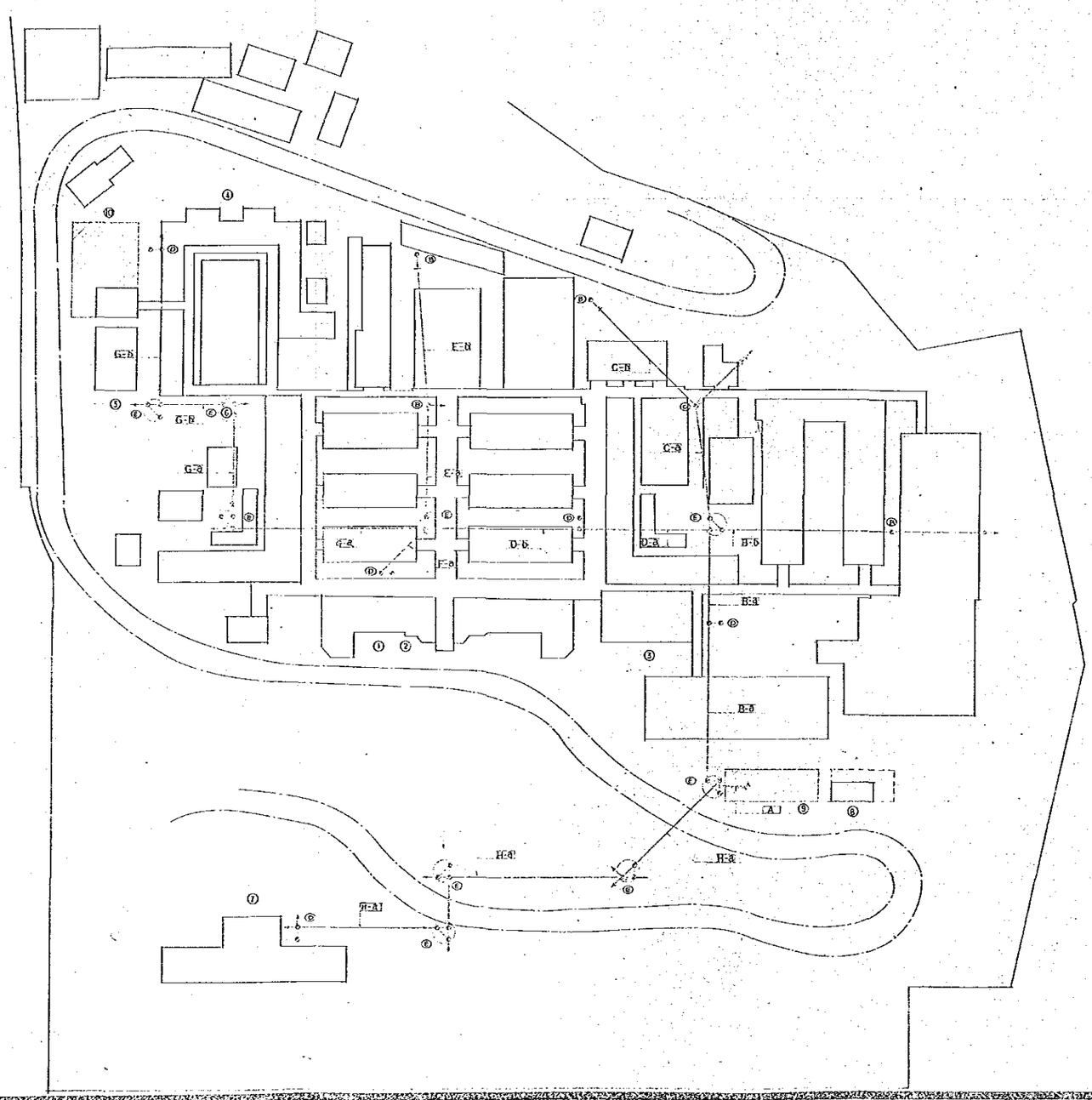




List of Material Package's Number, Outside Line Construction Works

	Pole		Fitting		Wires		Cable Rack	
	m^3	ton	m^3	ton	m^3	ton	m^3	ton
Gunung Wenang	88	52.03	75	45	135	75	0.8	0.5
Tondano	43	25.68	21	13	14	8	0.8	0.5
Kotamobagw	18	10.7	10	6	8	5	0.8	0.5
Gorontalo	22	12.84	12	8	12	7	0.8	0.5
Lim Kendage	22	12.86	9	6	12	7	0.8	0.5
Sub-total	193	114.49	127	78	181	102	4.0	2.5
Ujung Pandang	84	50.29	29	18	87	48	1.2	0.8
Walan pone	29	17.12	19	12	16	9	0.8	0.5
Soppeng	31	18.19	30	18	16	9	0.8	1.0
Pare Pare	45	26.75	18	11	21	12	0.8	0.5
Elm Rantpao	31	18.19	14	9	11	6	0.8	0.5
Palopo	24	13.91	13	8	10	6	0.8	0.5
Bantaeng	25	14.98	13	8	16	9	0.8	0.5
Sub-total	269	159.43	136	84	177	99	6.0	4.3
Medan	134	80.25	62	38	117	65	2.0	1.0
Tartung	70	41.73	19	12	41	23	1.2	0.8
Porsea	33	19.26	23	14	10	6	0.8	0.5
Pematang Sienter	66	39.59	20	12	59	33	1.2	0.8
Tebing Tinggi	22	12.84	14	9	15	9	0.8	0.5
Tanzung Bali	25	14.98	8	5	10	6	0.8	0.5
Kisaran	29	17.12	11	7	26	15	0.8	0.5
Rantar Prapat	40	23.54	17	10	16	9	0.8	0.5
Sub-total	419	249.31	174	107	294	166	8.4	5.1
Total	881	523.23	437	269	652	367	18.4	11.9

4-9 Drawing of Outside Line



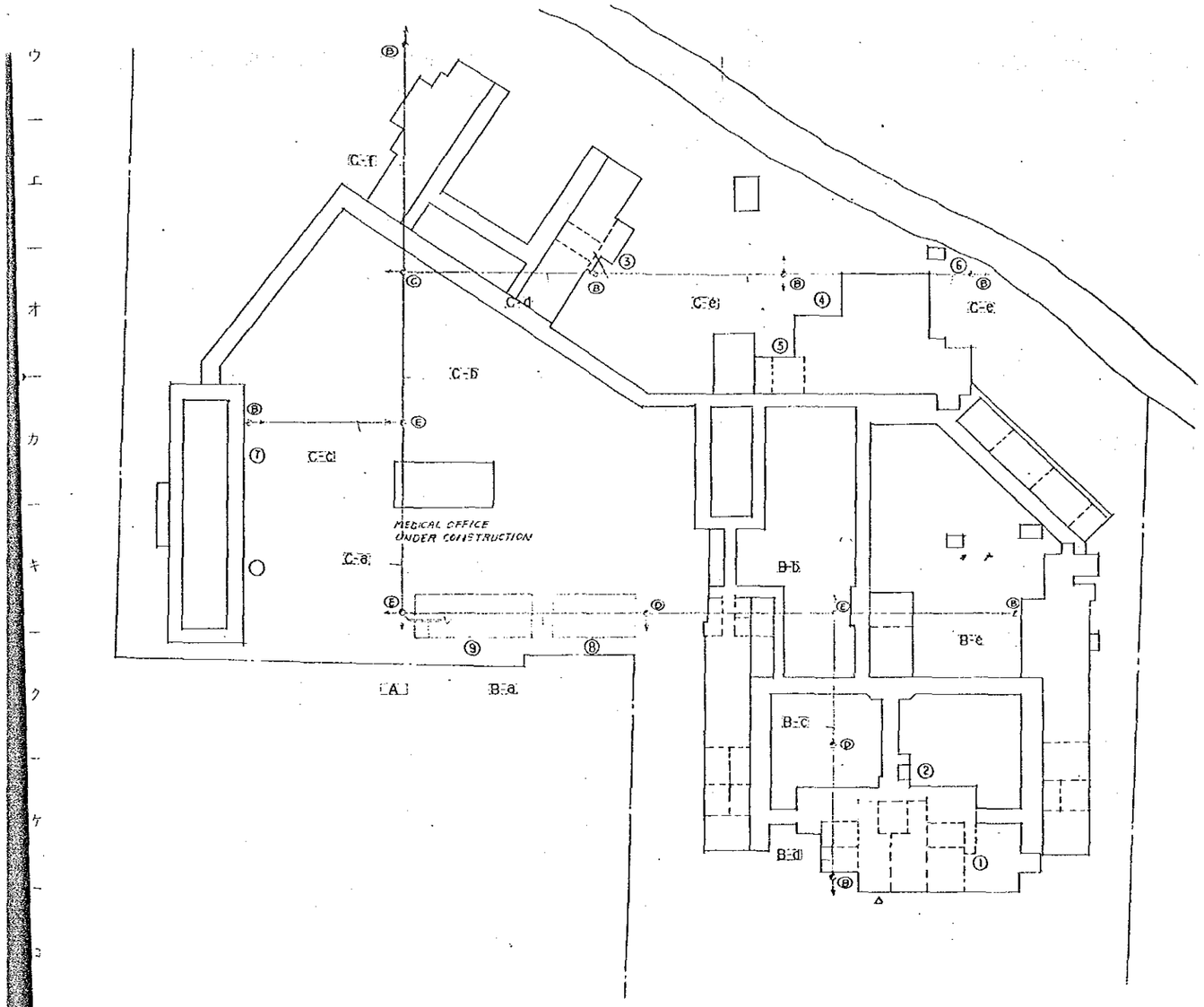
① LABORATORY
② X-RAY ROOM
③ OPERATION THEATER, DENTAL CLINIC
④ LAUNDRY
⑤ KITCHEN
⑥ NEW OBSTRIC ROOM AND OPERATION THEATER
⑦ NEW OUT PATIENT CLINIC
⑧ NEW HOUSE FOR TRANSFORMER
⑨ SUBSTATION ROOM
Ⓚ BOILER ROOM

SYMBOL	ORDER	WORKS	SYSTEM	SIZE OF WIRE
G-b	1-Lo		3φ4W 127-220	ON 38-4
	1-Ln		3φ4W 127-220	" 60-4
	1-M		3φ4W 127-220	" 150~3-4
	1-LnR		3φ4W 127-220	" 150-4-4
	1-P		3φ3W 220	" 150-3
G-a	1-Lo		3φ4W 127-220	" 100-4
	1-Ln		3φ4W 127-220	" 100-4
	1-M		3φ4W 127-220	" 150~3-4
	1-Xo		1φ2W 220	" 150-2
	1-LnR		3φ4W 127-220	" 150-4-4
	1-P		3φ3W 220	" 150-3
E-b	1-Lo		3φ4W 127-220	" 38-4
E-a	1-Lo		3φ4W 127-220	" 100-4
F-a	1-Lo		3φ4W 127-220	" 150~2-4
	1-Ln		3φ4W 127-220	" 100-4
	1-Xo		1φ3W 220-380	" 100-3
	1-P		3φ3W 220	" 38-3
D-b	1-Lo		3φ4W 127-220	" 150~3-4
	1-Ln		3φ4W 127-220	" 100~2-4
	1-M		SAME AS G-a	" 150~3-4
	1-Xo		1φ2W 220	" 150-2
	1-Xo'		1φ3W 220-380	" 100-3
	1-P		3φ3W 220	" 150-3
	1-LnR		3φ4W 127-220	" 150-4-4
C-b	1-Lo		3φ4W 127-220	" 38-4
C-a	1-Lo		3φ4W 127-220	" 60-4
B-b	1-Lo		3φ4W 127-220	" 100-4
D-a	1-Lo		SAME AS D-b	" 150~3-4
	1-Ln		SAME AS D-b	" 100~2-4
	1-M		SAME AS D-b	" 150~3-4
	1-Xo		SAME AS D-b	" 150-2
	1-Xo'		SAME AS' D-b	" 100-3
	1-P		SAME AS D-b	" 150-3
	1-LnR		SAME AS D-b	" 150-4-4
B-a	1-Lo		3φ4W 127-220	" 150-4-4
	1-Ln		3φ4W 127-220	" 150-2-4
	1-M		3φ4W 127-220	" 150-3-4
	1-Xo		1φ2W 220	" 150-2
	1-Xo		3φ4W 220-380	" 100-3
	1-P		3φ3W 220	" 150-3
	1-LnR		3φ4W 127-220	" 150-4-4
H-a	1-Lo		3φ4W 127-220	" 150-2-4
	1-Ln		3φ4W 127-220	" 100-4
	1-M		3φ4W 127-220	" 100-4
	1-Xo		1φ2W 220	" 22-2
	1-Xo		3φ4W 220-380	" 150~2-4
	1-LnR		3φ4W 127-220	" 150-4
	1-P		3φ3W 220	" 100-3
A	1-Lo	150 mm²	3φ4W 127-220	CV 4C-150 x4
	1-Ln	60	3φ4W 127-220	CV 4C-150 x2
	1-M	60	3φ4W 127-220	CV 4C-150 x4
	1-Xo	38	3φ4W 220-380	CV 4C-150
	1-Xo	60	3φ4W 220-380	CV 4C-150 x2
	1-LnR	38	3φ4W 127-220	CV 4C-150
	1-P	38	3φ3W 220	CV 4C-100 x2
	1-LnR	117	3φ4W 127-220	CV 4C-150 x4

(xx) IS SHOWN IS STANDARD ASSEMBLING DRAWING

GUNUNG WENANG 1

4-205



① LABORATORY ROOM
② X-RAY ROOM
③ OPERATION THEATER
④ KITCHEN
⑤ LAUNDRY
⑤ PUMPING ROOM
⑦ SITE FOR NEW X-RAY ROOM
⑧ SUBSTATION
⑨ GENERATOR ROOM

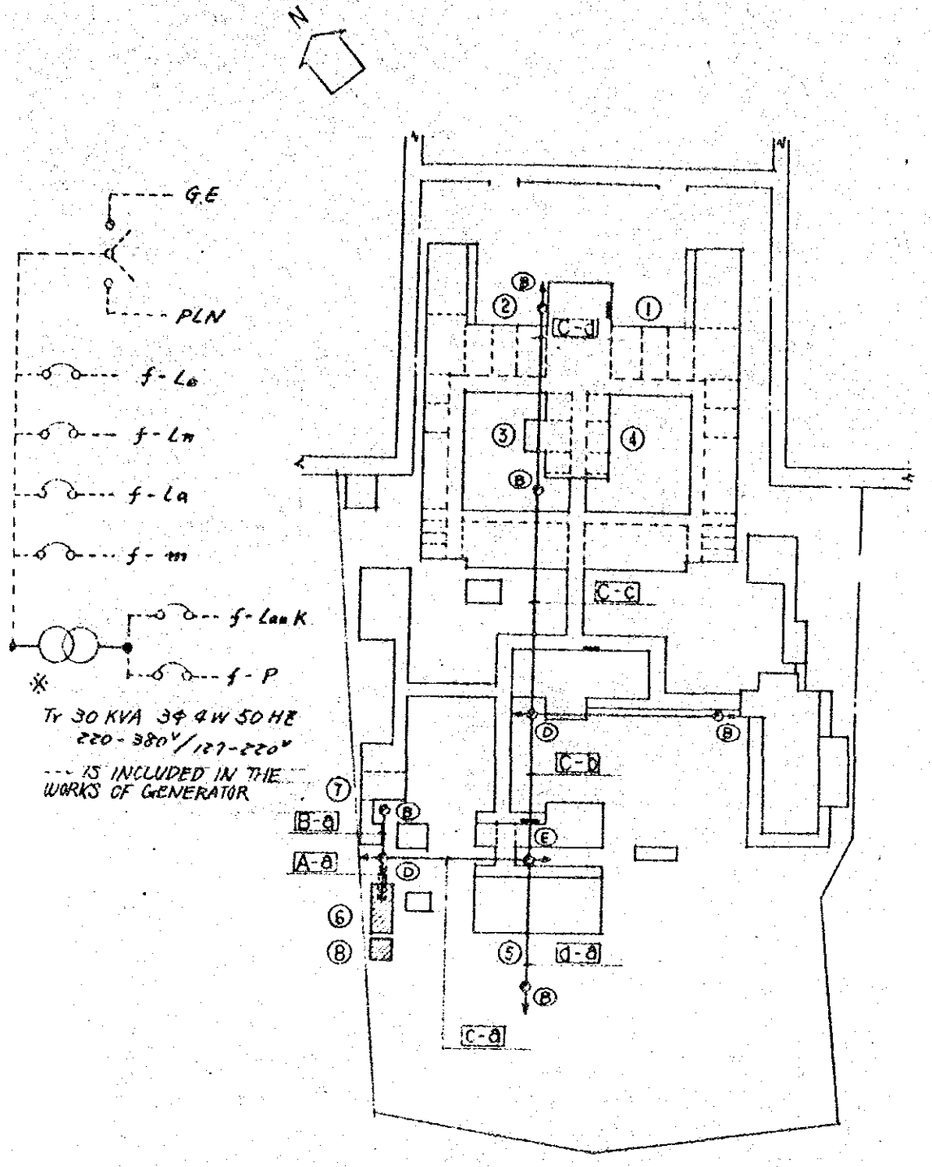
C-f	f-Lo	2	CVA	3φ4W 127-220	ow 14-4
C-e	f-Lo	2		3φ4W 127-220	〃 14-4
	f-Ln	6		3φ4W 127-220	〃 38-4
	f-Lm K	10	3	3φ4W 127-220	〃 60-4
	f-P	3		3φ3W 220	〃 14-3
C-d	f-Lo			SAME AS C-e	〃 14-4
	f-Ln	12		3φ4W 127-220	〃 60-4
	f-Lm K			SAME AS C-e	〃 60-4
	f-P	28		3φ3W 220	〃 14-4
	f-X	27	5	3φ4W 127-220	〃 100-4
C-b	f-Lo	4		3φ4W 127-220	〃 22-4
	f-Ln	12		SAME AS C-d	〃 60-4
	f-Lm K			SAME AS C-d	〃 60-4
	f-P			SAME AS C-d	〃 14-3
	f-X			SAME AS C-d	〃 100-4
C-c	f-Lo	1		3φ4W 127-220	〃 14-4
	f-Lx	2		3φ4W 127-220	〃 14-4
	f-Xn	32		1φ3W 220-330	〃 150-3
	f-Xo	5		1φ2W 220	〃 22-2
	f-P			3φ3W 220	〃 22-3
C-a	f-Lo	5		3φ4W 127-220	〃 22-4
	f-Ln	14		3φ4W 127-220	〃 60-4
	f-Lm K			SAME AS C-d	〃 60-4
	f-P			3φ3W 220	〃 38-3
	f-X			SAME AS C-d	〃 100-4
	f-Xn	32		SAME AS C-a	〃 150-3
	f-Xo			SAME AS C-d	〃 22-2
B-e	f-Lo	2		3φ4W 127-220	〃 14-4
B-d	f-Lo	3		3φ4W 127-220	〃 14-4
	f-Ln	9		3φ4W 127-220	〃 38-4
B-c	f-Lo			SAME AS B-d	〃 14-4
	f-Ln			SAME AS B-d	〃 38-4
	f-M	15		3φ4W 127-220	〃 60-4
	f-La	20		3φ4W 127-220	〃 100-4
	f-Xo	3		1φ2W 220	〃 22-2
	f-P	4	8	3φ3W 220	〃 14-3
B-b	f-Lo	5		3φ4W 127-220	〃 22-4
	f-Lx			SAME AS B-c	〃 38-4
	f-M			SAME AS B-c	〃 60-4
	f-La			SAME AS B-c	〃 100-4
	f-Xo			SAME AS B-c	〃 22-2
	f-P			SAME AS B-c	〃 14-3

A Same as B-a + C-a CV 4C Cable
AEL f-Lo ; CV 4C-60
f-Ln ; 〃 4C-100
f-P ; 〃 4C-38
f-M ; 〃 4C-150
f-Xo ; 〃 4C-22

(WP) IS SHOWN IS STANDARD ASSEMBLING DRAWING

TONDANO 2

4-206



① OUT PATIENT CLINIC DIRECTORS ROOM ADMINSTRATION ROOM

② PHAMACY RESEPTION OFFICE ROOM

③ OPERATION THEATER DISINFECTING ROOM

④ FIRST AID ROOM LABORATORY

⑤ KITCHEN

⑥ GENERATOR ROOM

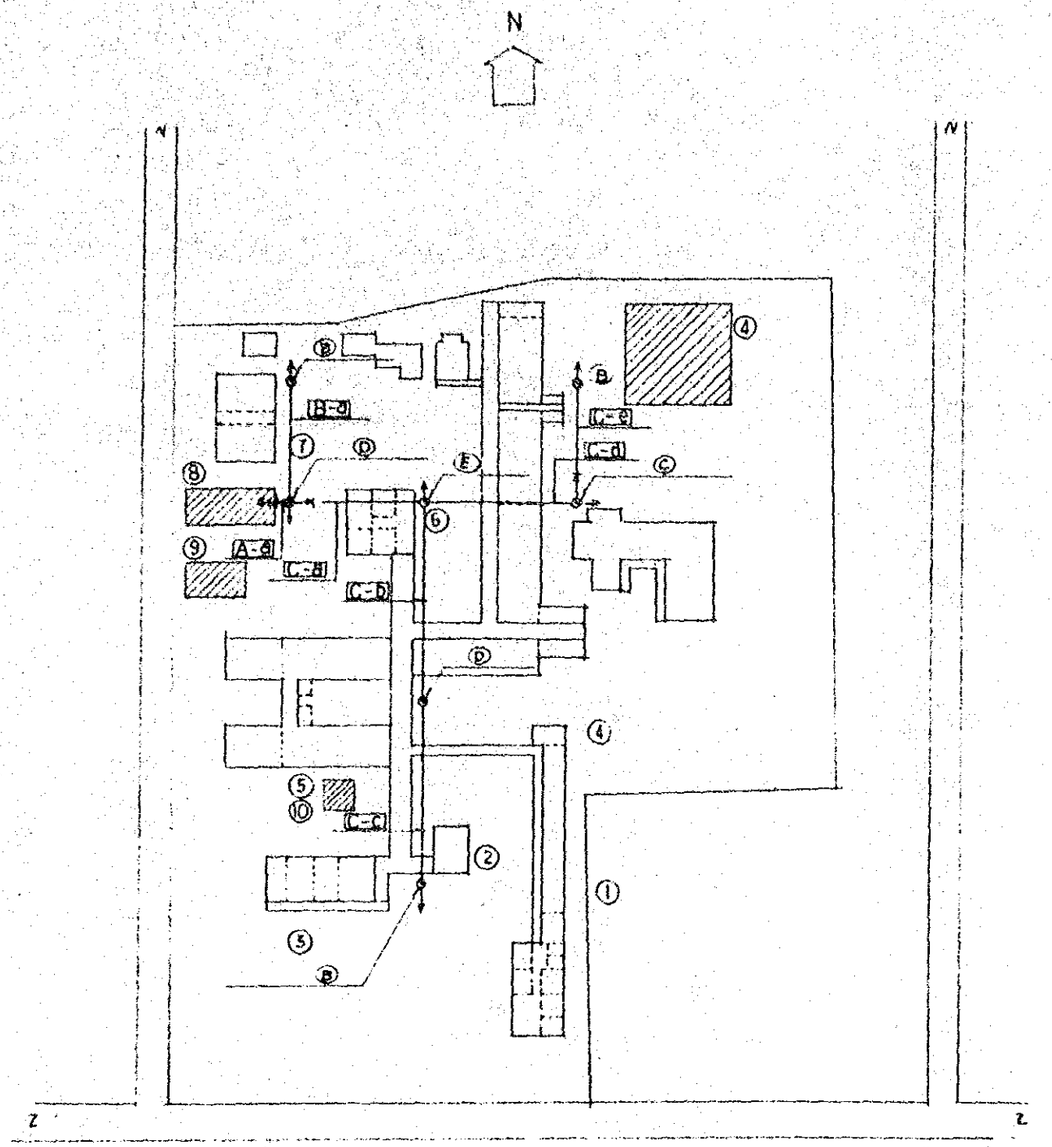
⑦ X-RAY ROOM

Ⓑ SUBSTATION

C-d	f-Lo	12 AUM	3φ4W 220/380	OW	22-a	
	f-Ln	16.5	3φ4W 220/380	OW	38-a	
	f-m	22.5	3φ4W 220/380	OW	100-a	
	f-P	9.6	3φ3W 220	OW	38-3	
C-c	f-Lo		Same as C-d	OW	22-a	
	f-Ln		"			
	f-m		"			
	f-P		"			
	f-La	15 AUM	3φ3W 220/380	OW	22-a	
C-b	f-Lo	12	Same as C-c	OW	22-a	
	f-Ln		"			
	f-m		"			
	f-P		"			
	f-La	15	"		22-a	
C-a	f-Lo	12	Same as C-c	OW	22-a	
	f-Ln	23.5	3φ4W 220/380	OW	38-a	
	f-m	22.5	3φ4W 220/380	OW	100-a	
	f-P	9.6	3φ4W 220/380	OW	38-3	
	f-La	15	3φ4W 220/380	OW	22-a	
	f-Lau K	10.6	3φ4W 220/380	OW	22-a	
B-a	f-P	8	3φ3W 220	OW	14-3	
	f-Xo	3	1φ2W 220	OW	14-2	
	f-Xm	25	1φ2W 220	OW	60-2	
	f-Ln	2	3φ4W 220/380	OW	14-a	
A-a	B-a ~ C-a		CV Cable			
	Bust	f-P	as CV 60-3C			
		f-Ln	as CV 38-4C			
d-a	f-Lau K	10.6	3φ4W 127/220	OW	22-a	
d-a	f-Ln	6	3φ4W 220/380	OW	14-a	

(W) is shown in Standard Assembling Drawing.

※ Dry-type transformer 30kVA shall be installed in generator room.



① PHAMARCY, OFFICEROOM

② LABORATORY ROOM

③ OUT PATIENT CLIME

④ KITCHEN LAUNDRY

⑤ LECTURE HALL

⑥ OPERATION THEATER

⑦ X-RAY WARD

⑧ GENERATOR ROOM

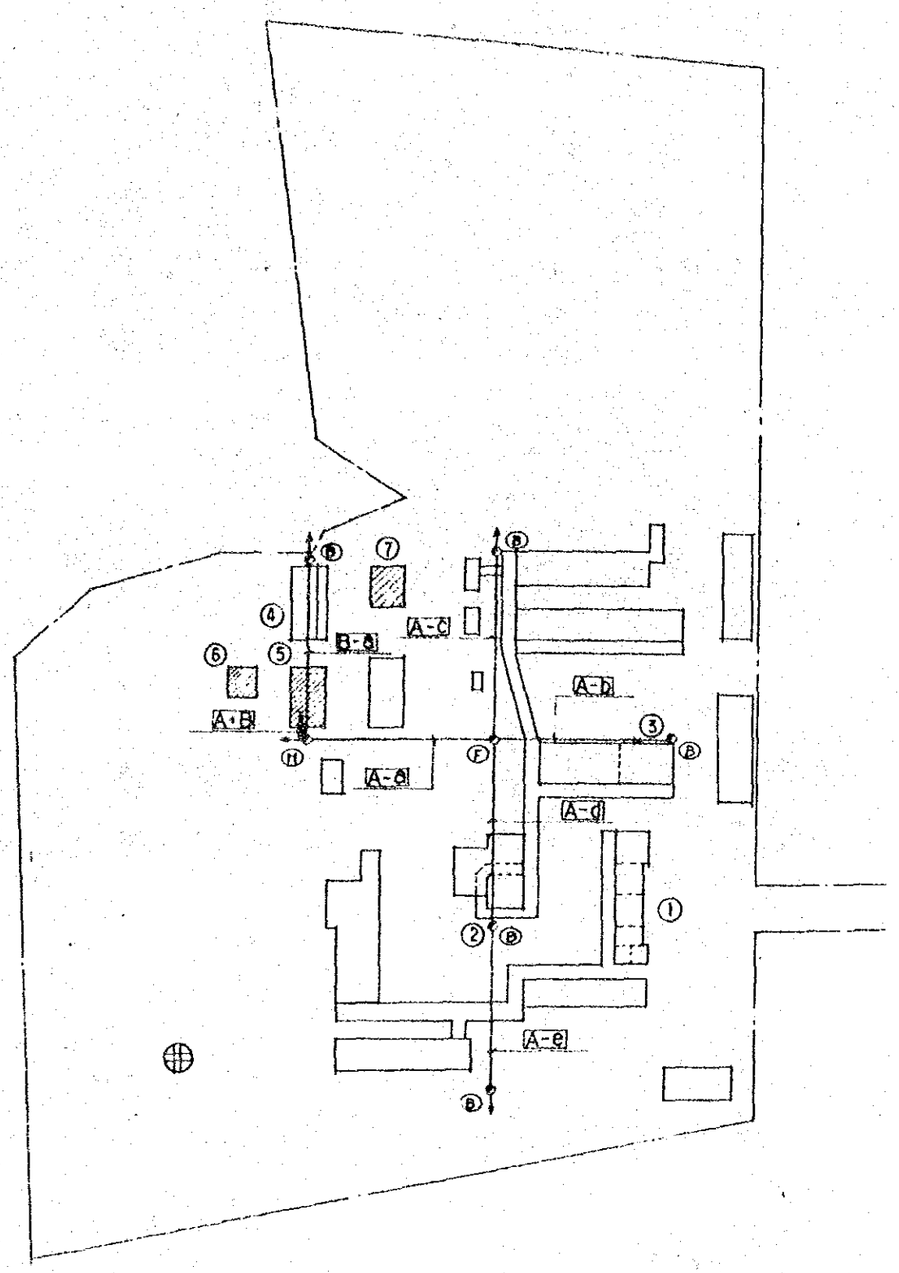
⑨ SUBSTATION

⑩ WATER TREATMENT

⑪ OBSTRICS AND GENELOLOGY WARD IS IN OTHER SITE

C-e	f-LmK	10	3φ4W 127/220	OW	22-a
	f-Lm	6	〃	OW	22-a
C-d	f-LmK			OW	22-a
	f-Lm			OW	22-a
	f-Lo	1 kVA	3φ4W 127/220	OW	22-a
C-c	f-m	42.5 kVA	3φ4W 127/220	OW	150-a
	f-La	20	3φ4W 127/220	OW	100-a
	f-Ln	15	3φ4W 127/220	OW	60-a
	f-P	12.8	3φ3W 220		38-a
			Same as C-C		
C-b	f-m		〃		
	f-La		〃		
	f-Ln		〃		
	f-P		〃		
	f-Lo	12 kVA	3φ4W 127/220	OW	38-a
	f-LmK		3φ4W 127/220	OW	22-a
C-a	f-m		Same as C-C		
	f-La		〃		
	f-Ln		3φ4W 127/220	OW	100-a
	f-P		Same as C-C		
	f-Lo	9 kVA	3φ4W 127/220	OW	38-a
	f-LmK		Same as C-C		
B-a	f-Ln	5 kVA	3φ4W 127-220	OW	14-a
	f-Xa	3 kVA	1φ2W 220	OW	14-2
	f-Xm	32 kVA	1φ3W 220	OW	100-a
	f-P	8 kVA	3φ3W 127-220	OW	14-3
A-a	B-a	C-a	CV 4C Cable		
	Aud	f-Ln	100-4C		
		f-P	60-4C		

(WC) is shown in Standard Assembling Drawing.



① OUTPATIENT CLINIC OFFICE & LABORATORY ROOM

② OPERATION THEATOR ROOM, DENTALCLINIC

③ X-RAY ROOM

④ KITCHEN

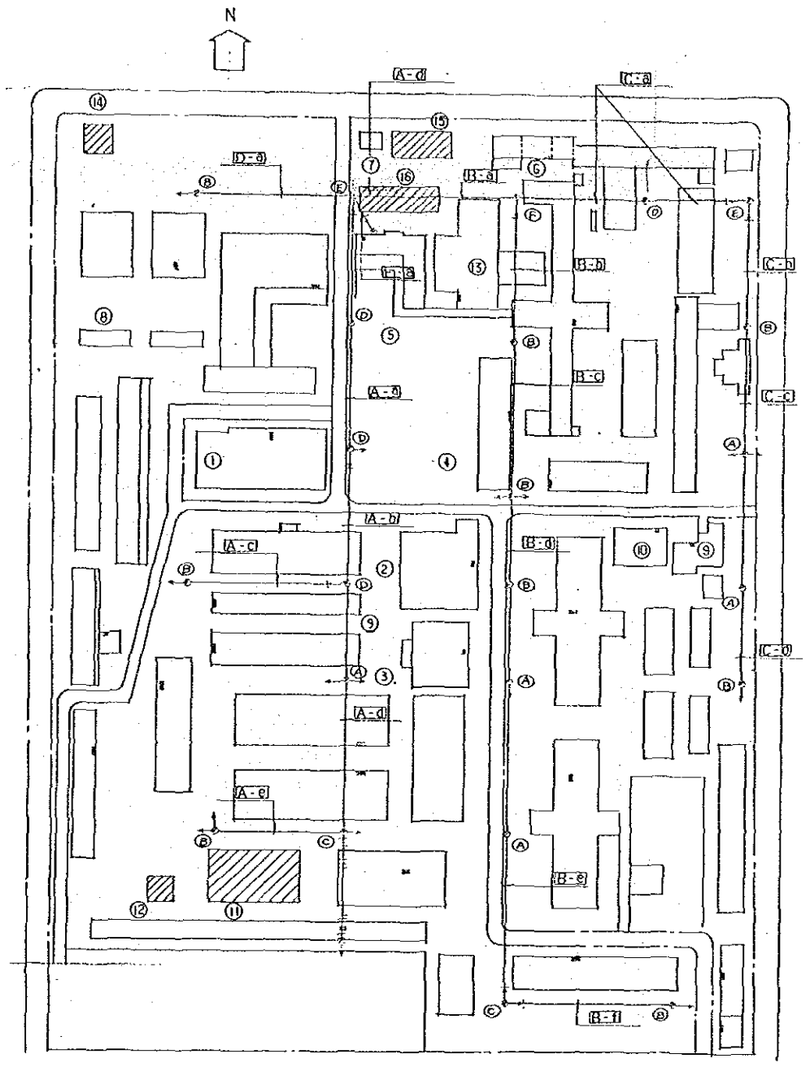
⑤ GENERATOR ROOM

⑥ SUBSTATION

⑦ LAUNDRY

A-a	f-La	1KVA 3φ2W 127-220 OW	14-Q
A-d	f-La	12 KVA 3φ2W 127-220 OW	60-Q
	f-La	7.5 3φ2W 127-220 OW	38-Q
	f-Lm	10.5 3φ2W 127-220 OW	38-Q
	f-P	2.2 3φ3W 220 OW	22-3
	f-m	22.3 3φ2W 127-220 OW	100-Q
A-c	f-La	2 KVA 3φ2W 127-220 OW	14-Q
A-b	f-Xa	3 1φ2W 220 OW	22-2
	f-Xm	32 1φ3W 220 OW	150-Q
	f-Lm	2 KVA 3φ2W 127-220 OW	14-Q
	f-P	8 KVA 3φ3W 220 OW	22-3
	f-La	2 KVA 3φ2W 127-220 OW	14-Q
A-a	f-La	13 KVA 3φ2W 127-220 OW	38-Q
	f-La	7.5 3φ2W 127-220 OW	38-Q
	f-Lm	12.5 3φ2W 127-220 OW	60-Q
	f-P	15.2 3φ3W 220 OW	38-3
	f-m	22.3 3φ2W 127-220 OW	100-Q
	f-Xa	3 1φ2W 220 OW	22-2
	f-Xm	32 1φ3W 220 OW	150-Q
B-a	f-LmK	8.67 3φ2W 127-220 OW	22-Q
	f-Lm	5 3φ2W 127-220 OW	14-Q
A+B	A-a + B-a	1CV. 4C Cable	
	But f-Lm	; 60-4C	
	f-P	; 60-4C	

Ⓦd is shown in Standard Assembling Drawing.



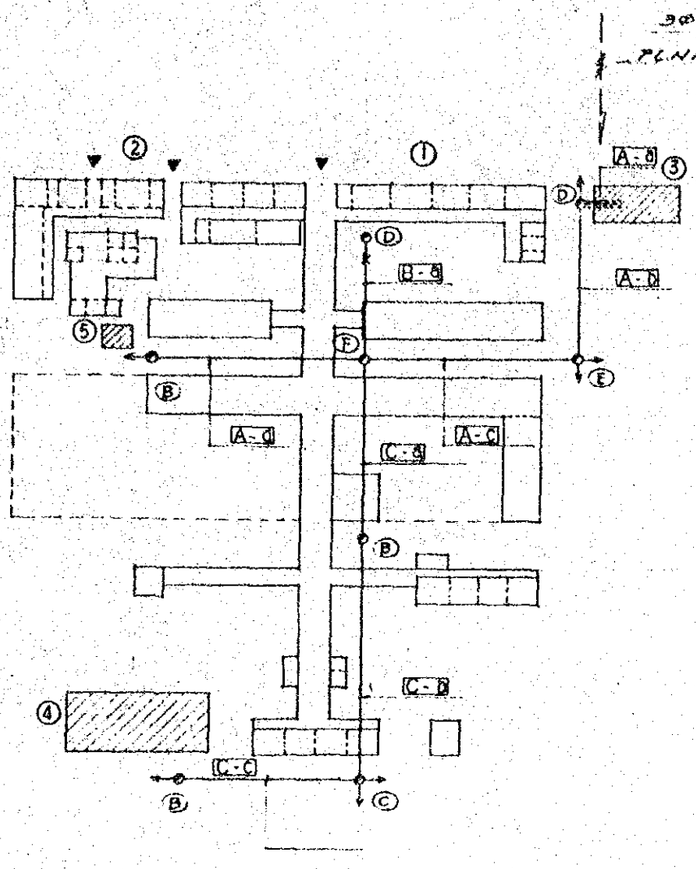
① ADMINISTRATION WARD
② OPERATION WARD
③ ICU WARD
④ REHABILITATION ROOM
⑤ X-RAY
⑥ LABORATORY
⑦ PLN (ROENGEN) SYSTEM)
⑧ PLN TRANSFORMER
⑨ KITCHEN
⑩ LAUNDRY
⑪ BOILER ROOM
⑫ INCINERATOR
⑬ CENTRAL SUPPLY
⑭ WATER SUPPLY TREATMENT ROOM
⑮ NEW SUBSTATION
⑯ GENERATOR HOUSE

	A-e	f-Lo	3φ4W 127-220	OW	38-a		C-d	f-Lo	3φ4W 127-220	OW	38-a
		f-Lm	SAME AS A-e	OW	100-a			f-LaxK	SAME AS C-d	OW	150~3-a
		f-LaxK	SAME AS A-e	OW	150-a			f-Lm	SAME AS C-d	OW	150-a
							C-c	f-Lo	SAME AS C-d	OW	60-a
	A-d	f-Lo	SAME AS A-e	OW	100-a			f-LaxK	SAME AS C-d	OW	150~3-a
		f-Lm	SAME AS A-e	OW	100-a			f-Lm	SAME AS C-d	OW	150-a
		f-LaxK	SAME AS A-c	OW	150-a		C-b	f-Lo	SAME AS C-d	OW	100-a
								f-LaxK	SAME AS C-d	OW	150~3-a
	A-c	f-Lo	3φ4W 127-220	OW	38-a			f-Lm	SAME AS C-d	OW	150-a
		f-P	3φ3W 220	OW	60-a						
	A-b	f-Lo	3φ4W 127-220	OW	150-a		C-a	f-Lo	SAME AS C-d	OW	100-a
		f-Lm	SAME AS A-b	OW	150-a			f-LaxK	SAME AS C-d	OW	150~3-a
		f-LaxK	SAME AS A-b	OW	150-a			f-Lm	SAME AS C-d	OW	150-a
		f-m	SAME AS A-b	OW	100-a			f-m	SAME AS C-d	OW	100-a
		f-P	3φ3W 220	OW	60-a			f-P	3φ3W 220	OW	100-3
		f-Xo	3φ4W 220-380	OW	100-a						
	A-a	f-Lo	3φ4W 127-220	OW	150-a						
		f-Lm	SAME AS A-a	OW	150-a						
		f-LaxK	SAME AS A-a	OW	150-a		E-a	f-P	3φ3W 220	OW	38-3
		f-m	SAME AS A-a	OW	100-a			f-Xo	1φ2W 220	OW	14-2
		f-P	3φ3W 220	OW	60-a			f-Xm	1φ3W	OW	150-3
		f-Xo	3φ4W 220-380	OW	100-a						
	D-a	f-Lo	3φ4W 127-220	OW	38-a						
		f-P	3φ3W 220	OW	60-3						
	B-f	f-Lo	3φ4W 127-220	OW	38-a						
	B-e	f-Lo	SAME AS B-f	OW	100-a						
							A-a	85	f-Lo	3φ4W 127-220	CV 4C-150×3
	B-d	f-Lo	SAME AS B-f	OW	150-a			50	f-Lm	SAME AS A-a	CV 4C-150×2
								75.4	f-m	SAME AS A-a	CV 4C-150×2
	B-c	f-Lo	SAME AS B-f	OW	150~2-a			67.7	f-P	3φ3W 220	CV 4C-100×2
								110	f-LaxK	3φ4W 127-220	CV 4C-150×3
	B-b	f-Lo	SAME AS B-f	OW	150~2-a			30	f-Lo	3φ4W 127-220	CV 4C-100
		f-Lm	SAME AS B-f	OW	60-a			61	f-Xo	3φ4W 220-380	CV 4C-150
								58	f-Xm	3φ4W 220-380	CV 4C-150
	B-a	f-Lo	SAME AS B-f	OW	150~2-a						
		f-Lm	SAME AS B-f	OW	150-a						
		f-m	SAME AS B-f	OW	150-a						
		f-P	3φ3W 127-220	OW	100-3						
		f-LaxK	3φ3W 127-220	OW	150~3-a						
		f-Lo	3φ3W 127-220	OW	100-a						

(NO) IS SHOWN IS STANDARD ASSEMBLING DRAWING

UJUNG PANDANG 6

4-210



① OUTPATIENT CLINIC X-RAY DENTAL

② COUNCIL ROOM, ADMINISTRATION OFFICE

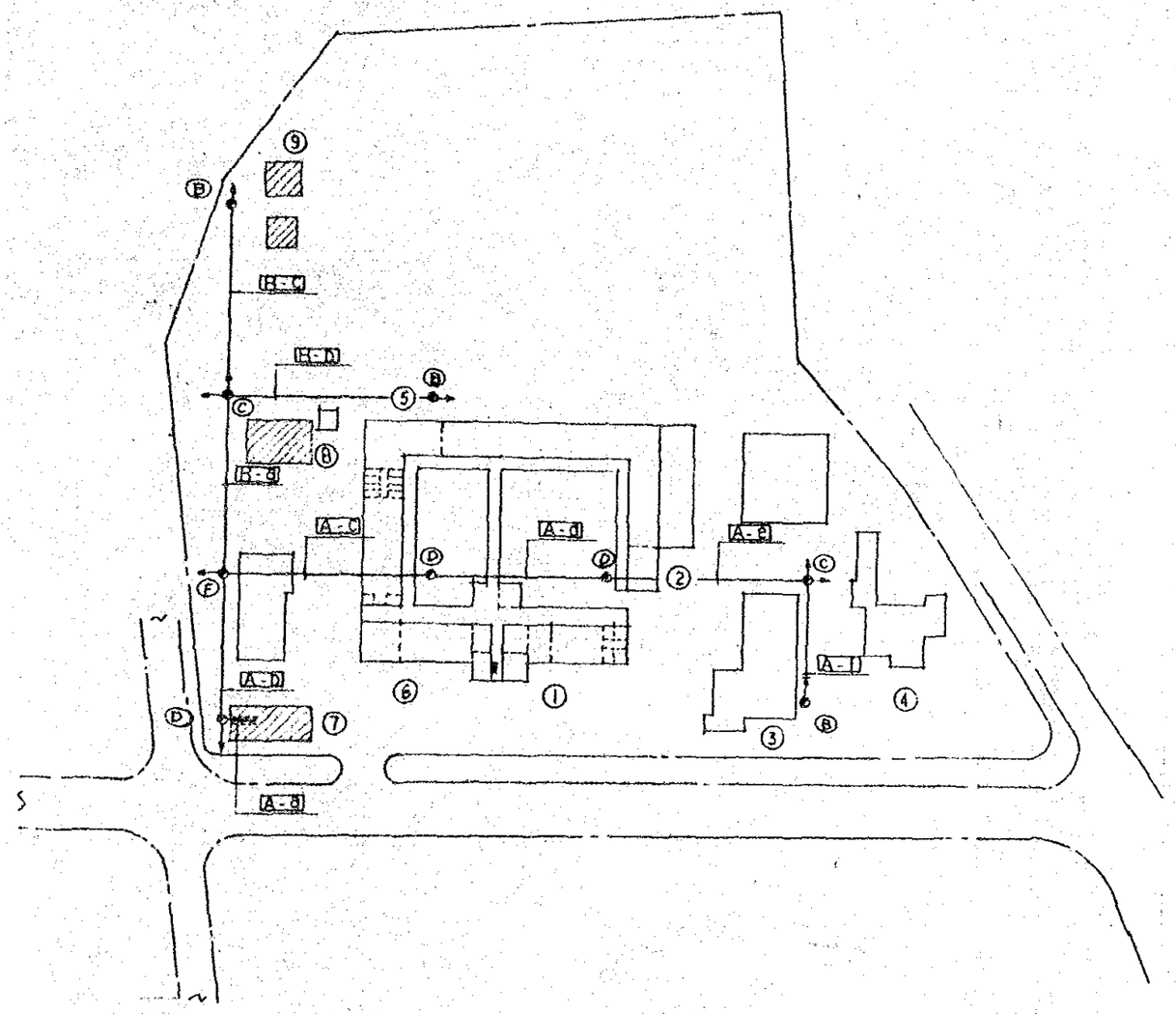
③ GENERATOR ROOM

④ KITCHEN, LAUNDRY

⑤ WATER SUPPLY & TREATMENT

A-d	f-Lo.	d	KVA	3φ4W/127-220	OW	22-d
	f-Lm.	d		3φ4W/127-220	OW	22-d
	f-P.	20		3φ3W 220	OW	100-d
	f-La.	10		3φ4W/127-220	OW	60-d
B-a	f-Lo.	9		3φ4W/127-220	OW	60-d
	f-Lm.	9		3φ4W/127-220	OW	60-d
	f-P.	13		3φ3W 220	OW	60-d
	f-m.	22.3		3φ4W 220	OW	100-d
	f-Xo.	3		1φ2W 220	OW	22-2
	f-Xm.	32		3φ4W/127-220	OW	100×2-d
C-c	f-Lo.Lk	8.7		3φ4W/127-220	OW	60-d
	f-Lm.	5		3φ4W/127-220	OW	38-d
C-b	f-Lo.	3		3φ4W/127-220	OW	22-d
	f-Lm.	5		3φ4W/127-220	OW	38-d
	f-Lo.Lk	8.7		3φ4W/127-220	OW	60-d
C-a	f-Lo.	9	SAME AS C-b			
	f-Lm.		SAME AS C-b			
	f-Lo.Lk		SAME AS C-b			
A-C	f-Lo.	9	SAME AS B-a			60-d
	f-Lm.	18	3φ4W		OW	100-d
	f-P.	28	3φ3W	220	OW	100-d
	f-La.	10	SAME AS A-d		OW	60-d
	f-m.	22.3	SAME AS B-a		OW	100-d
	f-Xo.	3	SAME AS B-a		OW	22-2
	f-Xm.	32	SAME AS B-a		OW	100×2-d
	f-Lo.Lk	8.7	SAME AS C-a		OW	60-d
A-b	SAME AS A-C					
A-a	Same as A-C ; CV. 4C Cable					

(NO) is shown in Standard Assembling Drawing.



① X-RAY

② LABORATORY

③ LECTURE HALL

④ DIRECTOR ROOM

⑤ KITCHEN

⑥ OUTPATIENT CLINIC

⑦ GENERATOR ROOM

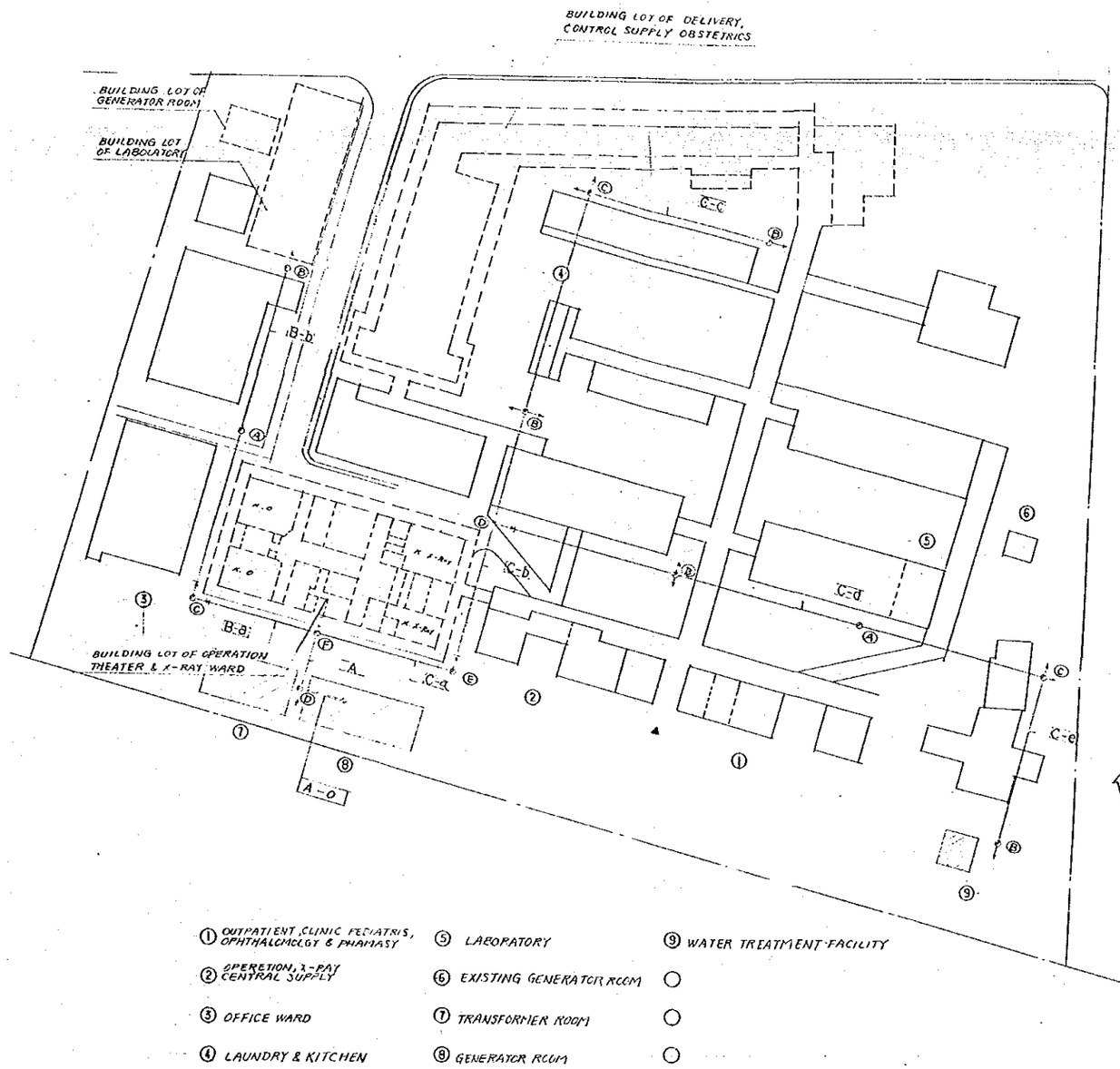
⑧ LAUNDRY

⑨ WATER SUPPLY & TREATMENT

A-f	f-Lo	2	3φ4W 127-220	OW	14-a
A-e	f-Lo	12	3φ4W 127-220	OW	100-a
A-d	f-Lo		SAME AS A-e		
	f-La	10	3φ4W 127-220	OW	60-a
	f-P	13	3φ3W 127-220	OW	60-a
	f-m	28.3	3φ4W 127-220	OW	100-a
	f-Lm	12	3φ4W 127-220	OW	60-a
	f-Xo	3	1φ2W 220	OW	22-2
	f-Xm	32	3φ3W 220	OW	100-2-a
A-C	f-Lo		SAME AS A-e		
	f-La		SAME AS A-d		
	f-P		SAME AS A-a		
	f-m		SAME AS A-d		
	f-Lm		SAME AS A-a		
	f-Xo		SAME AS A-d		
	f-Xm		SAME AS A-d		
B-a	(B-b)+(B-C)				
B-b	f-Lo	2	3φ4W 127-220	OW	14-a
	f-Lm	5	3φ4W 127-220	OW	22-a
	f-Lawk	8.7	3φ4W 127-220	OW	38-a
B-C	f-P	7.5	3φ3W 220	OW	22-a
A-b	f-Lo	12	3φ4W 127-220	OW	100-a
	f-La	10	3φ4W 127-220	OW	60-a
	f-P	20.5	3φ3W 220	OW	60-a
	f-m	28.3	3φ4W 127-220	OW	100-a
	f-Lm	17	3φ4W 127-220	OW	100-a
	f-Xo	3	1φ2W 220	OW	22-2
	f-Xm	32	3φ4W 127-220	OW	100×2-a
	f-Lawk	8.7	3φ4W 127-220	OW	38-a

A-a Same as [A-b] ; CV4 Cable

(No) is shown in Standard Assembling Drawing.

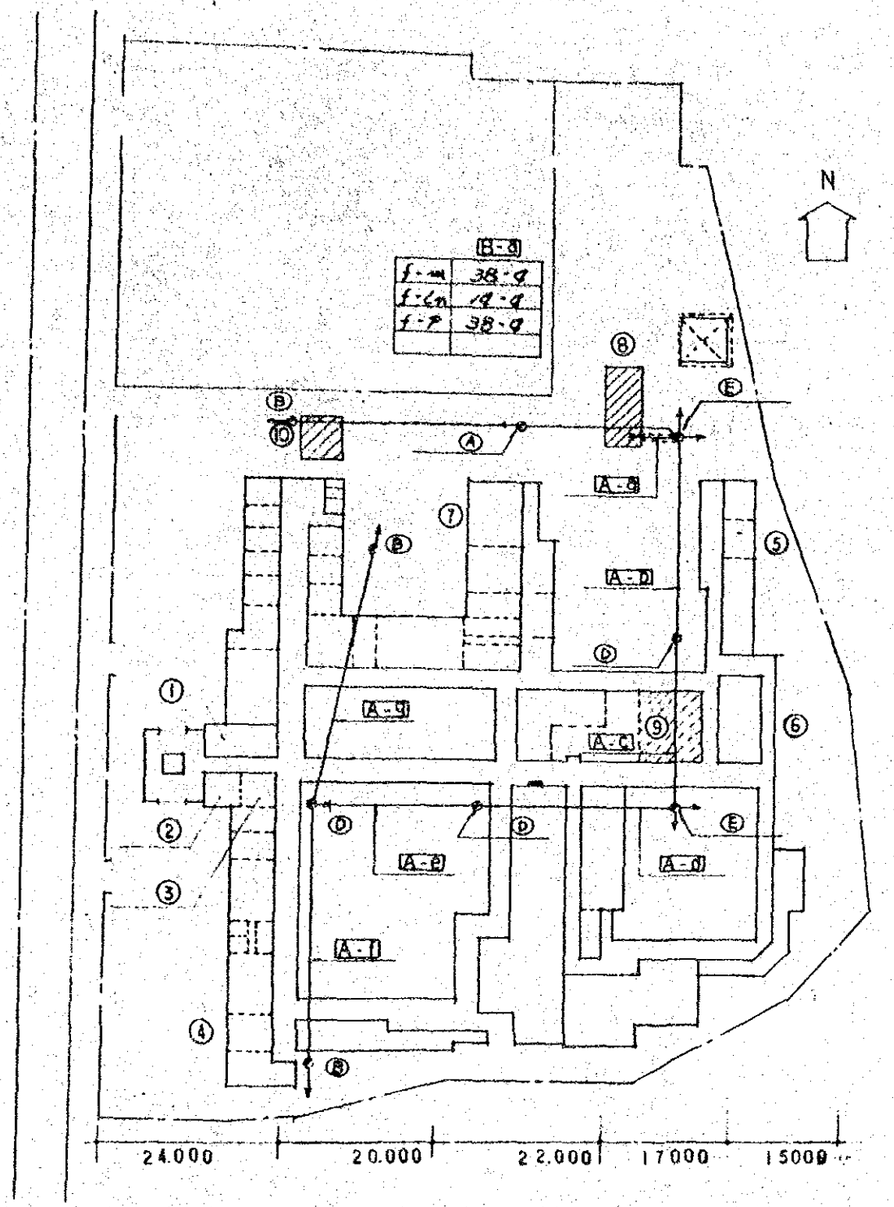


B-b	f-Le		3φ4W-127-220	ow	22-4
	f-Ln		3φ4W-127-220	"	22-4
	f-La		3φ4W-127-220	"	100-4
	f-P		3φ3W 220	"	22-3
B-a	f-Le		SAME AS B-b	"	22-4
	f-Ln		SAME AS B-b	"	22-4
	f-La		SAME AS B-b	"	100-4
	f-P		SAME AS B-b	"	22-3
C-c	f-Le		3φ4W-127-220	"	14-4
	f-P		3φ3W 220	"	38-3
C-d	f-Le		3φ4W 127-220	"	100-4
	f-P		3φ3W 220	"	38-3
	f-Ln		3φ4W 127-220	"	60-4
	f-m		3φ4W 127-220	"	100-4
	f-Xo		1φ2W 220	"	22-2
C-C	f-Le		3φ4W 127-220	"	60-4
	f-Ln		3φ4W 127-220	"	38-4
	f-LaK		3φ4W 127-220	"	60-4
C-a	f-Le		3φ4W 127-220	"	150-4
C b	f-Ln		3φ4W 127-220	"	100-4
	f-m		3φ4W 127-220	"	150-4
	f-Xn		1φ3W 220	"	150-3
	f-Xo		1φ2W	"	22-2
	f-LaK		3φ4W 127-220	"	60-4
	f-P		3φ3W	"	60-3
A	f-Le	33 KVA	3φ4W 127-220	"	150-4
	f-Ln	22.5	3φ4W 127220	"	100-4
	f-m	42.5	3φ4W 127-220	"	150-4
	f-Xn	32	1φ2W 220	"	22-2
	f-Xo	3	1φ3W 220	"	150-3
	f-LaK	8.7	3φ4W 127-220	"	60-4
	f-La	20	3φ4W 127-220	"	100-4
	f-P	21.5	3φ3W 220	"	100-3
A-0	Same as A CV.AC				

(20) IS SHOWN IS STANDARD ASSEMBLING DRAWING

PARE PARE 9

4-213



① OFFICE ROOM

② DENTAL CLINIC

③ PHARMACY

④ LABORATORY

⑤ X-RAY

⑥ KITCHEN

⑦ OPERATION THEATER

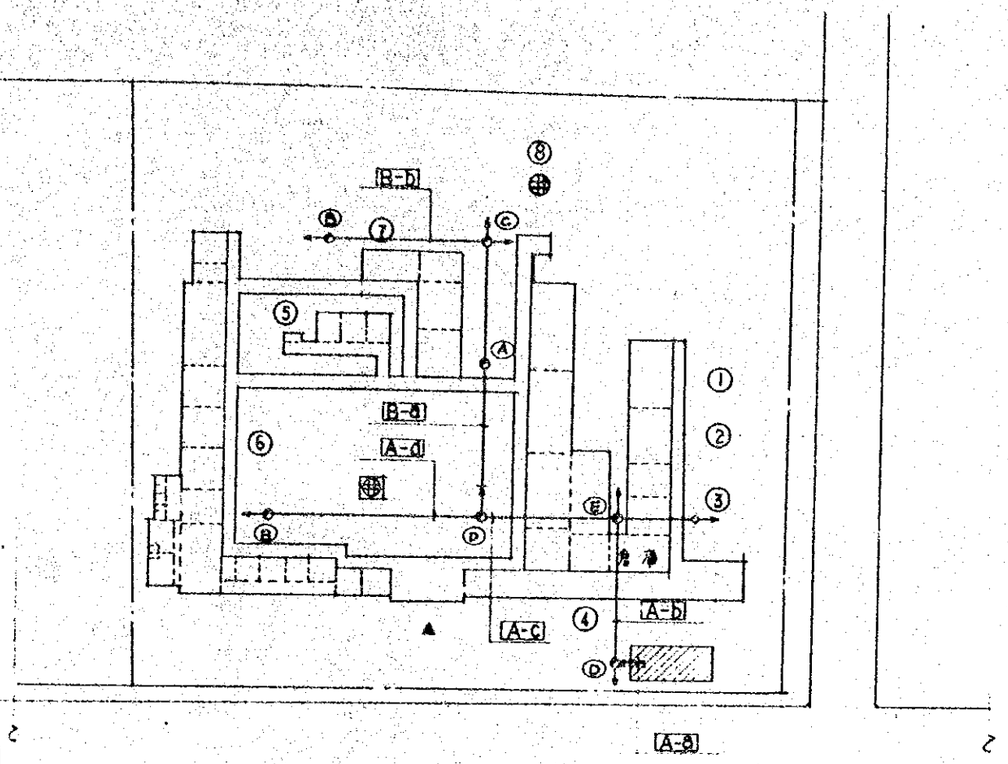
⑧ GENERATOR ROOM

⑨ LAUNDRY

⑩ WATER SUPPLY & TREATMENT

A-g	f-Ca	8	3P4W/22·220	OW	14-q	
	f-Ln	2	3P4W/22·220	OW	14-q	
A-f	f-Ca	10	3P4W/127·220	OW	60-q	
	f-P	5	3P3W 220	OW	22-3	
	f-Ln	2	3P4W/127·220	OW	14-q	
A-e	f-Ca	10	3P4W/127·220	OW	60-q	
A-d	f-P		SAME AS A-f	OW	22-3	
	f-Ln	K.S.S.S.S.S	2P3W/127·220	OW	100-q	
	f-m	2P.2P.2P	3P4W/127·220	OW	60-q	
	f-Ca	7	3P4W/127·220	OW	38-q	
A-c	f-Ca		SAME AS A-f	OW	60-q	
	f-P		SAME AS A-f	OW	22-3	
	f-Ln		SAME AS A-c	OW	100-q	
	f-m		SAME AS A-e	OW	60-q	
	f-Ca		SAME AS A-e	OW	38-q	
	f-LnK	8.67	3P4W/127·220	OW	38-q	
A-b	f-Ca		SAME AS A-f	OW	60-q	
	f-P		SAME AS A-f	OW	22-3	
	f-Ln		SAME AS A-e	OW	100-q	
	f-m		SAME AS A-e	OW	60-q	
	f-Ca		SAME AS A-e	OW	60-q	
	f-LnK		SAME AS A-C	OW	38-q	
	f-Xa	3	1P2W 220	OW	14-2	
	f-Xn	32	3P4W 220	OW	100-q	
A-a	A-b + B-a : CV. 4C Ca					
	but f-m ; 100-qc					
	f-Ln ; 100-qc					
	f-P ; 60-qc					

Ⓦ is shown in Standard Assembling Drawing.



① DIRECTOR ROOM

② TREATMENT ROOM

③ PHARMACY

④ X-RAY

⑤ LAUNDRY

⑥ OUTPATIENT-CLINIC

⑦ KITCHEN

⑧ WATER SUPPLY & TREATMENT

B-b	f-Lo	2	EVA 3φ2W/127-220	OW		N-4
	f-Ln	5	3φ2W/127-220	OW		22-4
	f-LonK	8.7	3φ2W/127-220	OW		38-4
	f-P	2.9	3φ3W 220	OW		38-4
B-a	f-Lo		SAME AS B-b			
	f-Ln		SAME AS B-b			
	f-LonK		SAME AS B-b			
	f-P		SAME AS B-b			
A-d	f-Lo	7	EVA 3φ2W/127-220	OW		38-4
	f-Ln	11.6	3φ2W/127-220	OW		60-4
	f-La	10	3φ2W/127-220	OW		60-4
	f-P	5	3φ3W 220	OW		22-4
	f-m	28.3	3φ2W/127-220	OW		100-4
A-c	f-LonK		SAME AS B-b			
	f-Lo		SAME AS A-d			
	f-Ln	17.6	3φ2W/127-220	OW		100-4
	f-La		SAME AS A-d			
	f-P	20.5	3φ3W 220	OW		60-4
	f-m		SAME AS A-d			
A-b	f-LonK		SAME AS B-b	OW		38-4
	f-Lo		SAME AS A-d	OW		38-4
	f-Ln		SAME AS A-c	OW		100-4
	f-La		SAME AS A-d	OW		60-4
	f-P		SAME AS A-c	OW		60-4
	f-m		SAME AS A-d	OW		100-4
	f-Xo	3	1φ2W 200	OW		14-2
	f-Xm	32	3φ4W 200	OW		100-4
A-a	Same as A-b ; CV. 4C Cable					

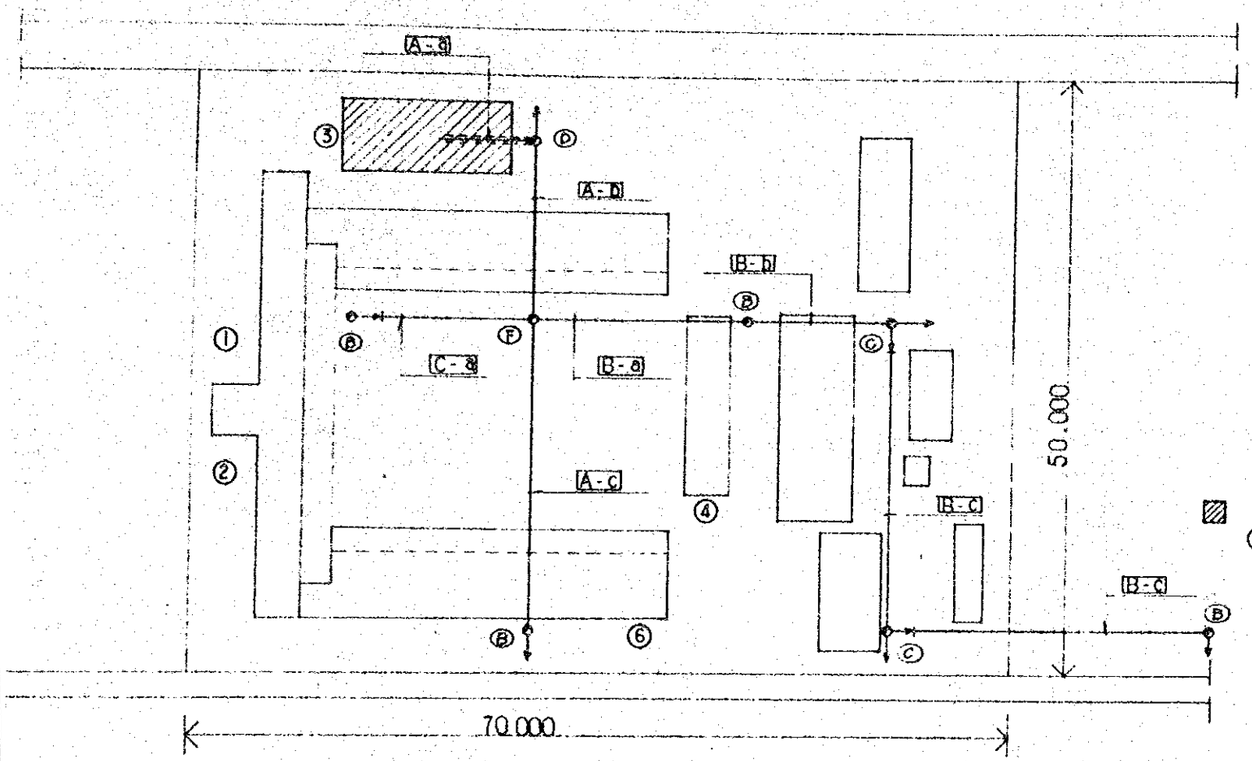
(NO) is shown in Standard Assembling Drawing.

① OUTPATIENT CLINIC ⑤ WATER TREATMENT

② OUTPATIENT LABORATORY ⑥ X-RAY

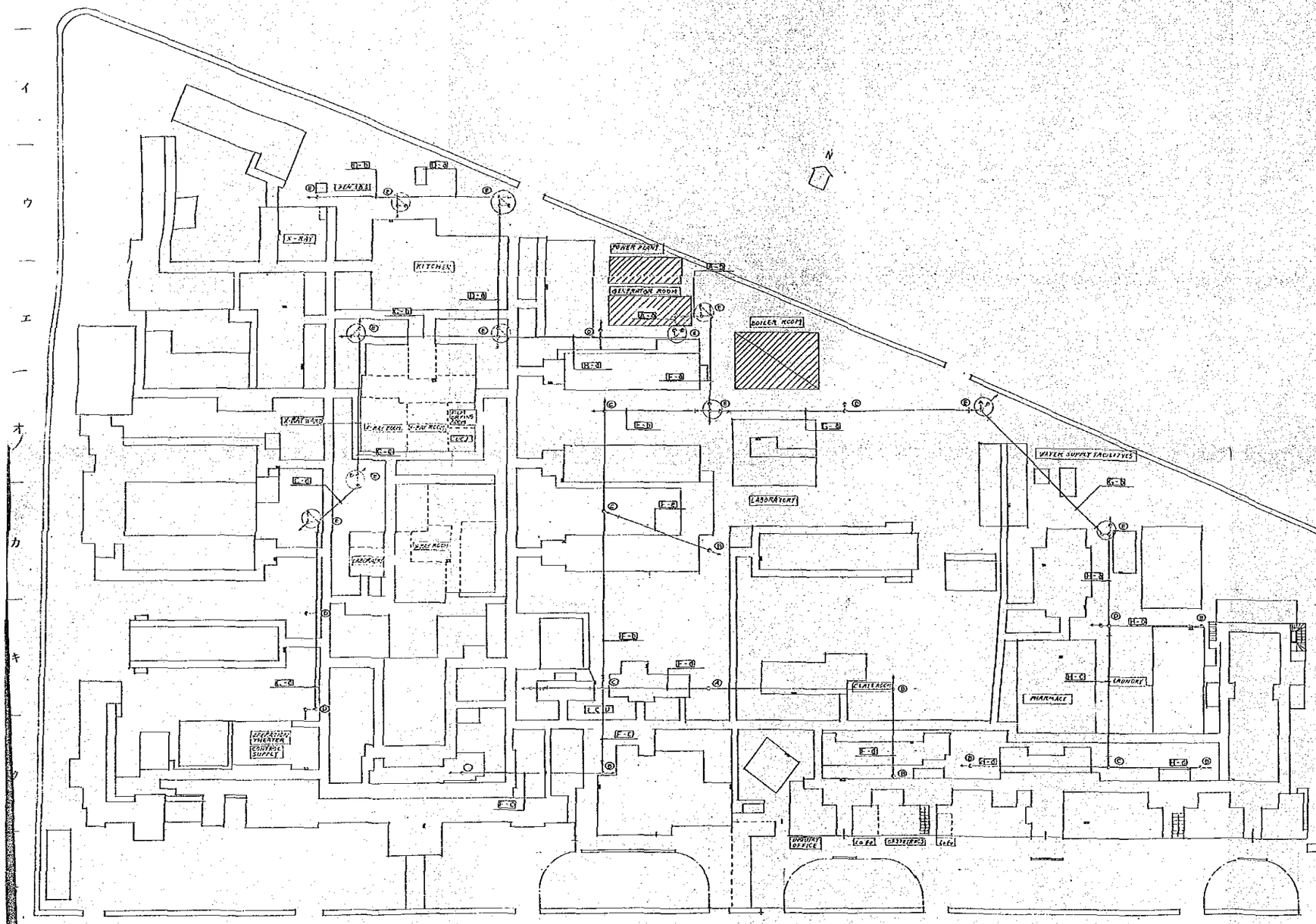
③ GENERATOR ROOM ○

④ KITCHEN LAUNDRY ○



A-C	f-Lo	2 ECM	3φ4W 127-220	OW	14-2
	f-Ln	2	3φ4W 127-220	OW	14-2
	f-Xo	3	1φ2W 220	OW	14-2
	f-Xn	25	1φ2W 220	OW	100-2
	f-P	8	3φ3W 220	OW	22-3
C-a	f-Lo	8	3φ4W 127-220	OW	22-2
	f-Ln	11.6	3φ4W 127-220	OW	38-2
	f-m	28.3	3φ4W 127-220	OW	60-2
	f-P	5	3φ3W 220	OW	14-2
	f-La	10	3φ4W 127-220	OW	22-2
B-C	f-P	7.5	3φ3W 220	OW	38-2
B-b	f-Lo	4	3φ4W 127-220	OW	14-2
	f-Ln	5	3φ4W 127-220	OW	14-2
	f-Lank	8.67	3φ3W 127-220	OW	22-2
	f-P	7.5	SAME AS B-C	OW	38-2
B-a		SAME AS B-b			
A-b	f-Lo	10	3φ4W 127-220	OW	38-2
	f-Ln	18.6	3φ4W 127-220	OW	60-2
	f-Xo		SAME AS A-C	OW	14-2
	f-Xn		SAME AS A-C	OW	100-2
	f-m	28.3	3φ4W 127-220	OW	60-2
	f-P	20.5	3φ3W 220	OW	60-2
	f-La	10	SAME AS C-a	OW	22-2
	f-Lank	8.7	SAME AS B-b	OW	22-2
A-a	Same as A-b ; CV. 4C Cable				

(NO) is shown in Standard Assembling Drawing.

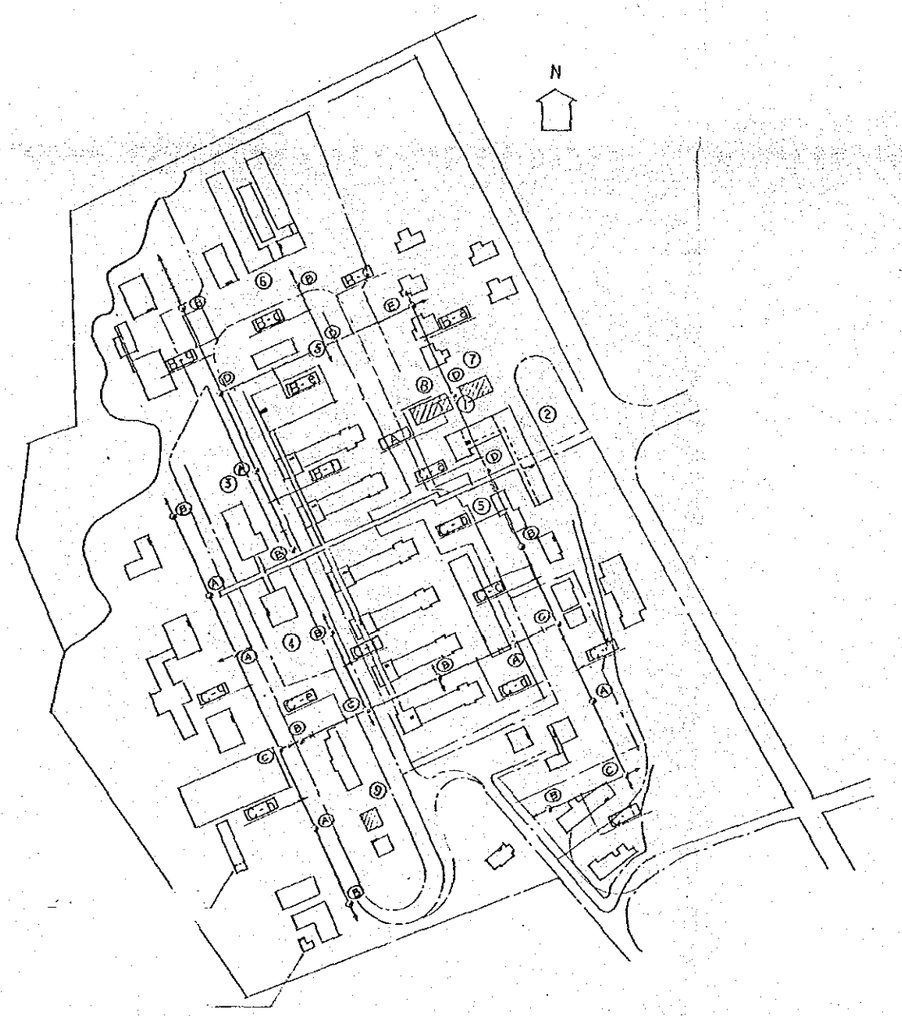


C-d		f-Lo	3φ4W127-220	OW	100-2-d	G-b		f-Lo	3φ4W127-220	OW	100~2-d
		f-Ln	SAME AS C-d	OW	60-d			f-Ln	SAME AS H-a	OW	100-d
		f-m	SAME AS C-d	OW	150~2-d			f-m	SAME AS H-a	OW	150~2-d
		f-P	3φ3W 220	OW	150-3			f-LmK	SAME AS H-b	OW	150-d
C-c		f-Lo	3φ4W127-220	OW	100~2-d			f-P	3φ3W 220	OW	150-3
		f-Ln	SAME AS C-c	OW	100-d						
		f-m	SAME AS C-d	OW	150~2-d						
		f-Xo	3φ4W220-380	OW	100~2-d	G-a		f-Lo	SAME AS G-b	OW	100~2-d
		f-Xm	3φ4W220-380	OW	150~2-d			f-Ln	SAME AS H-a	OW	100-d
		f-P	SAME AS C-d	OW	150-3			f-m	SAME AS H-a	OW	150~2-d
								f-LmK	SAME AS H-b	OW	150-d
C-b		f-Lo	SAME AS C-c	OW	100~2-d			f-P	SAME AS H-b	OW	150-3
		f-Ln	SAME AS C-c	OW	100-d			f-Lo	3φ4W127-220	OW	100-d
		f-m	SAME AS C-d	OW	150~2-d						
		f-Xo	SAME AS C-c	OW	100~2-d	F-a		f-Lo	3φ4W127-220	OW	150~3-d
		f-Xm	SAME AS C-c	OW	150~2-d			f-Ln	SAME AS F-a	OW	~2-d
		f-P	SAME AS C-c	OW	150-3			f-m	SAME AS H-a	OW	150~2-d
								f-LmK	SAME AS H-b	OW	150-d
D-b		f-Lo	3φ4W127-220	OW	60-d			f-P	SAME AS G-b	OW	150-3
		f-Xo	3φ2W 220	OW	38-2			f-Lo	SAME AS G-a	OW	100-d
D-a		f-Lo	3φ4W127-220	OW	60-d						
		f-Xo	3φ2W 220	OW	38-2						
		f-LmK	3φ4W127-220	OW	150~2-d						
B-a		f-Lo	3φ4W127-220	OW	150-2-d						
		f-Ln	SAME AS B-a	OW	150-d						
		f-m	SAME AS C-d	OW	150~2-d						
		f-Xo	SAME AS C-b	OW	100~2-d						
		f-Xm	SAME AS C-b	OW	150~2-d						
		f-P	SAME AS C-d	OW	150-3						
		f-LmK	SAME AS D-a	OW	150~2-d						

A-a	40	f-Lo	SAME AS D-a	OW	150~2-d	A-a	A-b				
	28	f-Ln	SAME AS B-a	OW	150-d	110	f-Lo	A-a		CV	8C-150×2
	56	f-m	SAME AS B-a	OW	150~2-d			A-b		CV	8C-150×3
	39.5	f-Xo	SAME AS B-a	OW	100~2-d	55	f-Ln	A-a		CV	8C-150
	68	f-Xm	SAME AS B-a	OW	150~2-d			A-b		CV	8C-150×2
	23	f-P	SAME AS B-a	OW	150-3	70	f-m	A-a		CV	8C-150×2
	118	f-LmK	SAME AS B-a	OW	150-2-d			A-b		CV	8C-150×2
						20	f-Lo				
								A-b		CV	8C-100
F-c		f-Lo	3φ4W127-220	OW	150-d	58.5	f-Xo	A-a		CV	8C-100×2
						68	f-Xm	A-b		CV	8C-150×2
X-d		f-Lo	3φ4W127-220	OW	150-d	40	f-P	A-a		CV	8C-150
		f-Ln	SAME AS F-d	OW	150-d			A-b		CV	8C-150
F-b		f-Lo	3φ4W127-220	OW	150~2-d	121	f-LmK	A-a		CV	8C-150×2
		f-Ln	SAME AS F-d	OW	150-d			A-b		CV	8C-150
F-e		f-Lo	3φ4W127-220	OW	60-d						
H-d		f-Lo	3φ4W127-220	OW	60-d						
		f-Ln	SAME AS H-d	OW	60-d						
		f-m	SAME AS H-d	OW	150~2-d						
H-c		f-Lo	3φ4W127-220	OW	60-d						
		f-Ln	SAME AS H-d	OW	60-d						
		f-m	SAME AS H-d	OW	150~2-d						
H-b		f-Lo	3φ4W127-220	OW	38-2						
H-b		f-LmK	3φ4W127-220	OW	150-d						
H-a		f-Lo	3φ4W127-220	OW	100-d						
		f-Ln	SAME AS H-a	OW	100-d						
		f-m	SAME AS C-d	OW	150~2-d						
		f-	SAME AS H-b	OW	150-d						

(no) IS SHOWN IS STANDARD ASSEMBLING DROWING

9-217



① OPERATION THEATER
② OUTPOTIENT CLINIC
③ KITCHEN
④ LAUNDRY
⑤ X-RAY WARD
⑥ COUNCIL-LECTURE HALL
⑦ TRANSFORMER ROOM
⑧ GENERATOR ROOM
⑨ WATER TREATMENT FACILITY

B-8	f-Lo	3	3φ4W127-220	OW	38	q
B-f	f-Lo	5	3φ4W127-220	OW	60	q
	f-Lm	18	SAME AS B-f	OW	100	q
	f-Lmk	10.3	SAME AS B-f	OW	60	q
B-e	f-Lo	8	SAME AS B-f	OW	100	q
	f-Lm	18	SAME AS B-f	OW	150	q
	f-Lmk	"	SAME AS B-f			
	f-Xo	2	1φ2W 220	OW	22	2
	f-Xm	32	1φ3W 220	OW	150	2.6
	f-P	4.6	3φ 220		22	3
B-d	f-Lo	2	3φ4W127-220	OW	14	q
B-C	f-Lo	10	3φ4W127-220	OW	100	q
	f-Lm		SAME AS B-e			
	f-Lmk		SAME AS B-e			
	f-Xo		SAME AS B-e			
	f-Xm		SAME AS B-e			
	f-P		SAME AS B-e			
B-a	f-Lo	19	3φ4W127-220	OW	100	q
	f-Lm		SAME AS B-e			
	f-Lmk		SAME AS B-e			
	f-Xo		SAME AS B-e			
	f-Xm		SAME AS B-e			
	f-P		SAME AS B-e			
C-g	f-Lo	3	3φ4W127-220	OW	38	q
C-h	f-Lo	3	SAME AS C-g	OW	38	q
	f-P	11.1	3φ3W 220	OW	38	3
C-e	f-Lo	6	3φ3W127-220	OW	60	q
	f-P		SAME AS C-h	OW		
C-f	f-Lo	5	3φ4W 127-220	OW	38	q
C-d	f-Lo	11	SAME AS C-f	OW	100	q
	f-P		SAME AS C-h	OW		
C-i	f-Lo	3	3φ4W127-220	OW	38	q
C-c	f-Lo	14	3φ4W127-220	OW	150	q
	f-P		SAME AS C-h			
C-b	f-Lo	25	3φ4W127-220	OW	150	q
	f-P	15.9	3φ3W	OW	60	q
	f-Lm	15	3φ4W127-220	OW	60	q
	f-Xo	5	1φ2W 220	OW	38	2

C-a	f-Lo		3φ4W127-220	OW	150	q
	f-P	20.7	3φ3W	OW	60	q
	f-Lm	38.5	3φ4W127-220	OW	150	q
	f-Xo		SAME AS C-b			
	f-m	36.5	3φ4W127-220	OW	100	q
	f-Lo	20	3φ4W127-220	OW	60	q

A. Same as C-a + B-a CV 4 Cable

But f-P CV 4C-100
f-Xo CV 4C-38
f-Lo CV 4C-150 x2
f-Lm CV 4C-150 x2

(NO) AS SHOWN IS STANDARD ASSEMBLING DRAWING

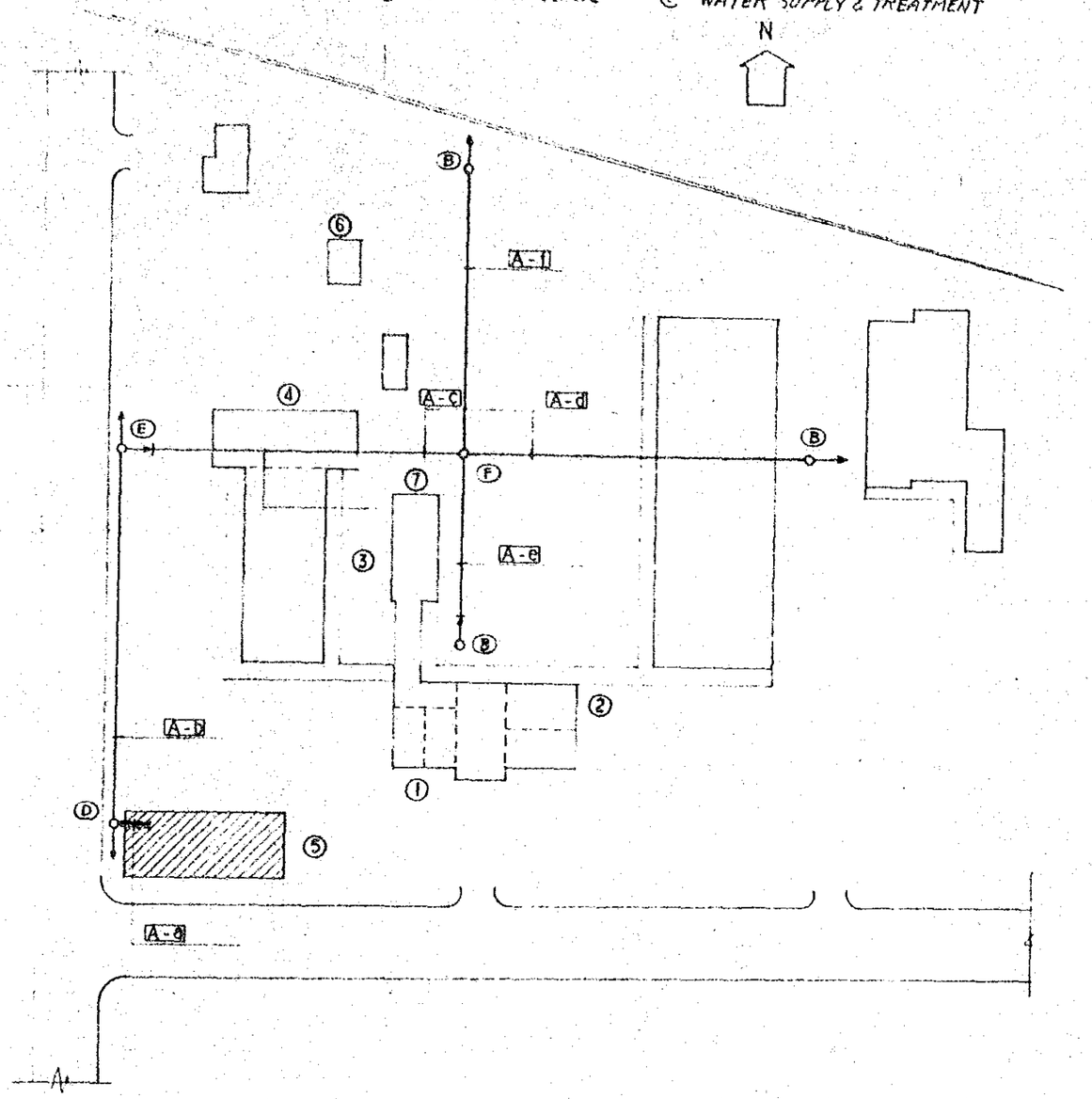
TARUTUNG 14

4-218

① OFFICE ROOM PHAMACY ④ X-RAY ⑦ KITCHEN, LAUNDRY

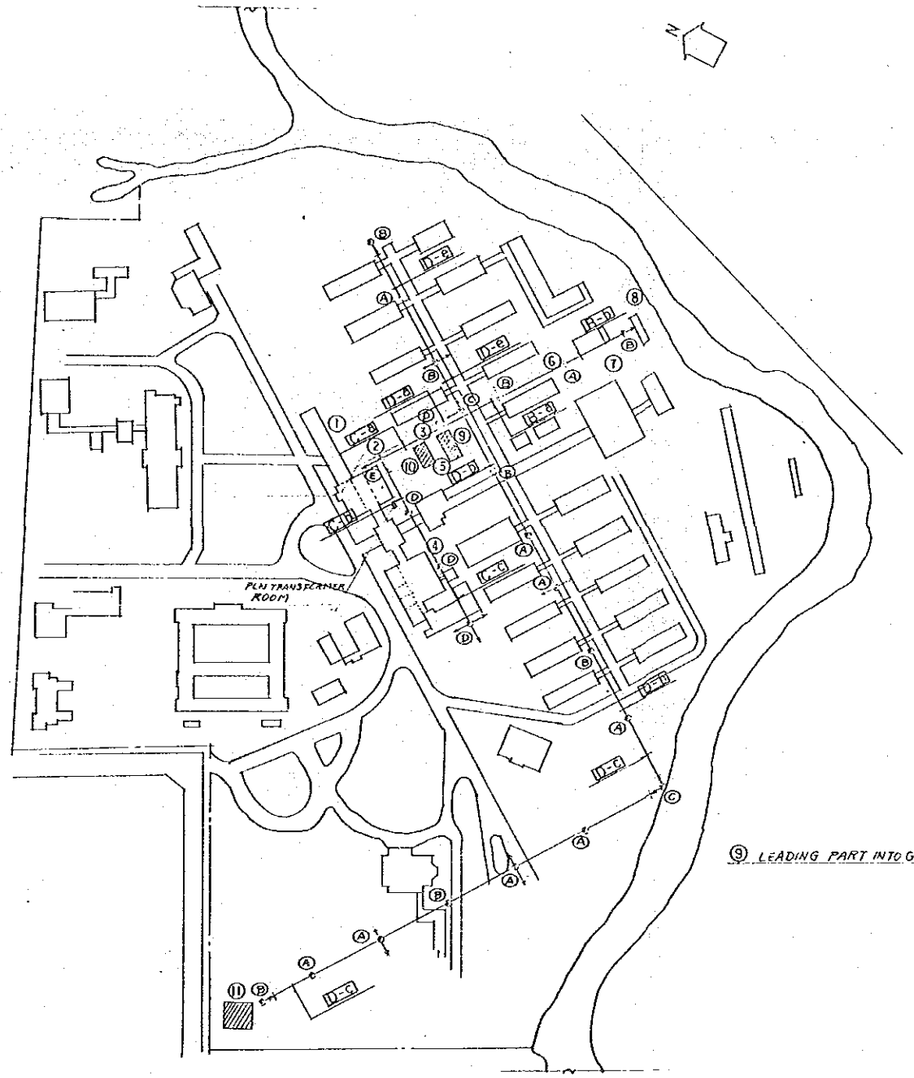
② LABORATORY ⑤ GENERATOR ROOM

③ OUTPATIENT CLINIC ⑥ WATER SUPPLY & TREATMENT



A-f	f-P	14.9	3φ3W	220	OW	60-3
A-e	f-Lo	5	3φ2W	127·220	OW	22-2
	f-Ln	17.6	3φ2W	127·220	OW	100-2
	f-P	2.9	3φ3W	220	OW	14-3
	f-La	10	3φ2W	127·220	OW	38-2
	f-m	22.3	3φ2W	127·220	OW	100-2
A-d	f-Lo	2	3φ2W	127·220	OW	14-2
	f-Ln	2	3φ2W	127·220	OW	14-2
A-C	f-Lo	7	3φ2W	127·220	OW	38-2
	f-Ln		SAME AS A-e		OW	100-2
	f-P	17.3	3φ3W	220	OW	60-2
	f-Lo&K	8.7	3φ2W	127·220	OW	38-2
	f-m		SAME AS A-e			
	f-La		SAME AS A-e			
A-b	f-Lo	7	SAME AS A-C		OW	38-2
	f-Ln	17.6	SAME AS A-e		OW	100-2
	f-P	17.3	SAME AS A-C		OW	60-2
	f-Lo&K	8.7	SAME AS A-C		OW	38-2
	f-m	22.3	SAME AS A-e		OW	100-2
	f-La	10	SAME AS A-e		OW	38-2
	f-Xa	5	1φ2W	220	OW	22-2
	f-Xn	25	1φ2W	220	OW	100-2
A-a	Same as A-b CV.4C Cable					

(NO) is shown in Standard Assembling Drawing.

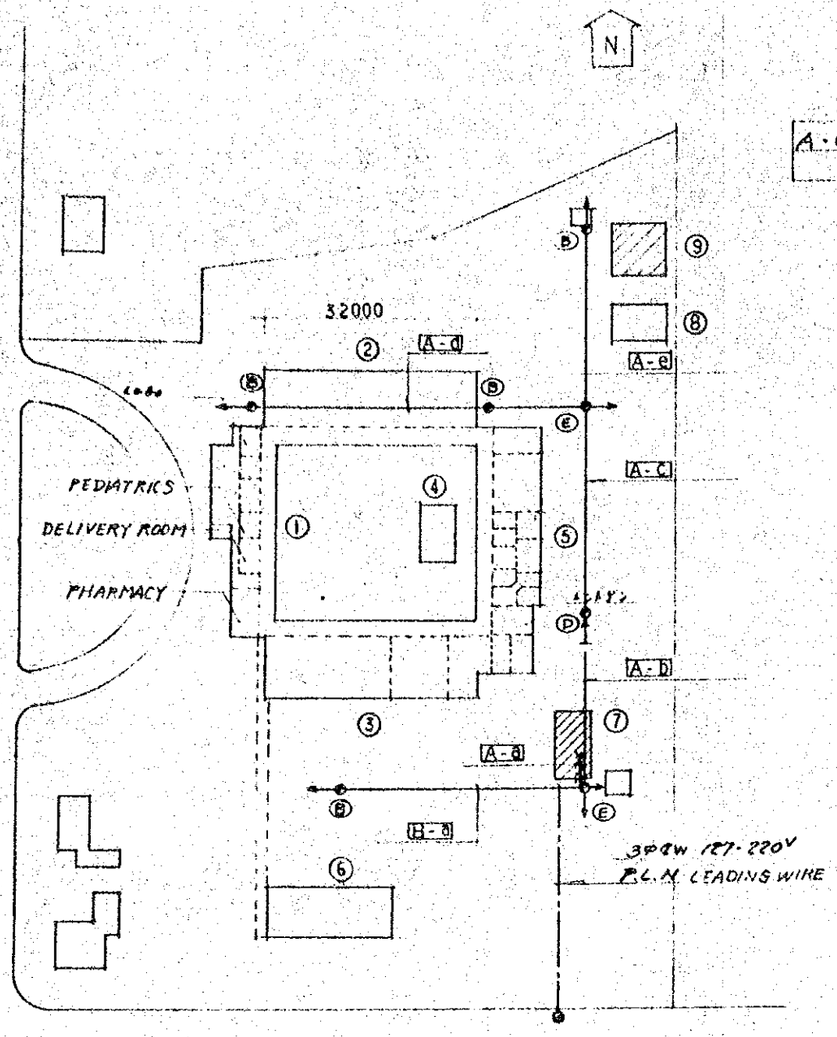


⑨ LEADING PART INTO GENERATOR ROOM IS [A]

① LABORATRY
② OPERATION THEATER
③ X-RAY ROOM
④ LABORATRY
⑤ OFFICE ROOM
⑥ NEW LABORATRY
⑦ DINING ROOM
⑧ LAUNDRY
⑨ GENERATAR ROOM
⑩ TRANSFORMER ROOM
⑪ WATER TREATMENT FACILITY

D-C	22.1	f-P	3φ3W 220	OW	150~2-3
D-b		f-P	SAME AS D-C	OW	150~2-3
	5	f-Lo	3φ4W 127-220	OW	38-4
D-e	5	f-Lo	3φ4W 127-220	OW	38-4
D-a		f-P	3φ3W 220	OW	150~2-3
	10	f-Lo	3φ4W 127-220	OW	60-4
C-C	27	f-Lo	3φ4W 127-220	OW	60-4
	12	f-Lm	SAME AS C-C	OW	100-4
	65.5	f-m	SAME AS C-C	OW	150~2-4
	32	f-Xm	1φ3W 220-380	OW	150~2-4
	30	f-La	3φ4W 127-220	OW	150-4
	24	f-P	3φ3W 220	OW	100-3
C-b	27.7	f-Lo	3φ4W 127-220	OW	100-4
	24	f-Lm	SAME AS C-b	OW	100-4
		f-m	SAME AS C-C	OW	150~2-4
		f-Xm	SAME AS C-C	OW	150~2-4
		f-La	SAME AS C-C	OW	150-4
		f-P	SAME AS C-C	OW	100-3
		f-Xo	1φ3W 220-380	OW	100-3
C-a		f-Lo	SAME AS C-b		
		f-Lm	SAME AS C-b		
		f-m	SAME AS C-C		
		f-Xm	SAME AS C-C		
		f-La	SAME AS C-C		
		f-P	SAME AS C-C		
		f-Xo	SAME AS C-b		
B-b	7.6	f-Lo	3φ4W 127-220	OW	38-4
	7.6	f-Lm	SAME AS B-b	OW	38-4
	14.8	f-Lank	SAME AS B-b	OW	100-4
B-a		f-Lo	SAME AS B-b		
		f-Lm	SAME AS B-b		
		f-Lank	SAME AS B-b		
A	44.7	f-Lo	3φ4W 127-220	CV	4C-100×2
	31.6	f-Lm	3φ4W 127-220	CV	4C-150×2
	65.5	f-m	3φ4W 127-220	CV	4C-150×2
	18	f-Xo	1φ3W 220-380	CV	4C-100
	32	f-Xm	1φ3W 220-380	CV	4C-150×2
	30	f-La	3φ4W 127-220	CV	4C-100
	14.8	f-Lank	3φ4W 127-220	CV	4C-100
	46.1	f-P	3φ3W 220	CV	4C-150×2

(10) IS SHOWN IS STANDARD ASSEMBLING DRAWING



A-e	f-Lau K	8.7	3ΦΦW/127-220	OW	38-Φ
	f-Lm	5	3ΦΦW/127-220	OW	22-Φ

① TREATMENT WARD

② WARD

③ WARD

④ OPERATION THEATER

⑤ ADMINISTRATION, X-RAY WARD

⑥ SPECIAL WARD

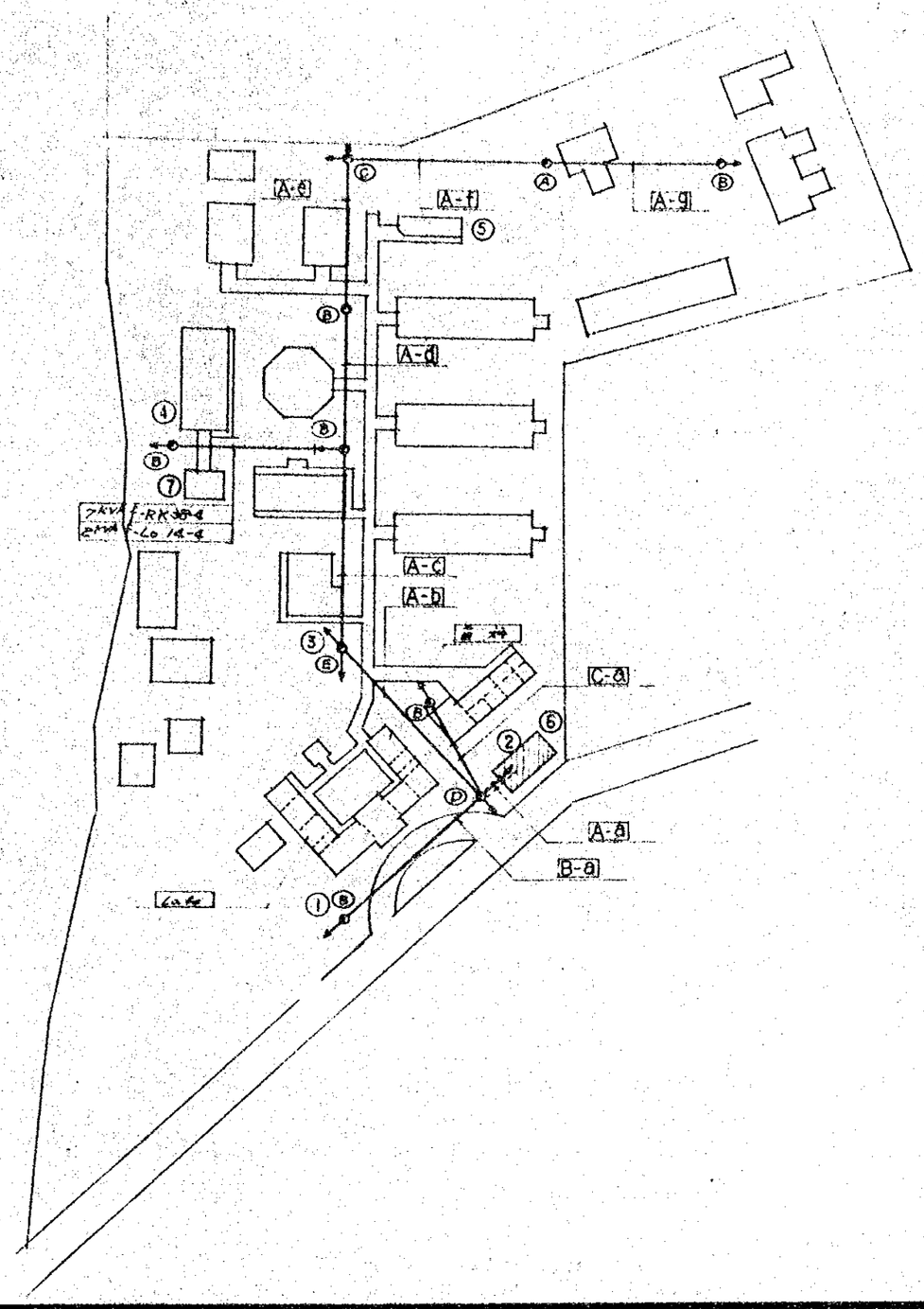
⑦ GENERATOR ROOM

⑧ KITCHIN

⑨ LAUNDRY

A-d	f-Lo	17	3ΦΦW/127-220	OW	60-Φ
	f-Lm	11.6	3ΦΦW/127-220	OW	60-Φ
	f-m	28.3	3ΦΦW/127-220	OW	150-Φ
	f-P	13	3Φ3W 220	OW	60-3
	f-La	10	3ΦΦW/127-220	OW	60-Φ
A-C	f-Lo		SAME AS A-d	OW	60-Φ
	f-Lm	16.6	3ΦΦW/127-220	OW	100-Φ
	f-m		SAME AS A-d	OW	150-Φ
	f-P		SAME AS A-d	OW	60-3
	f-La		SAME AS A-d	OW	60-Φ
	f-Lau K		SAME AS A-d	OW	38-Φ
A-b	f-Lo		SAME AS A-d	OW	60-Φ
	f-Lm		SAME AS A-c	OW	100-Φ
	f-m		SAME AS A-d	OW	150-Φ
	f-P		SAME AS A-d	OW	60-3
	f-La		SAME AS A-d	OW	60-Φ
	f-Lau K		SAME AS A-e	OW	38-Φ
	f-Xo	3	1ΦΦW 220	OW	14-2
	f-Xm	32	3ΦΦW/127-220	OW	100-Φ
B-a	f-Lo	3	3ΦΦW	OW	14-Φ
	f-Lm	3	3ΦΦW	OW	14-Φ
A-a	Same as A-b C.V. Φ.C Cable				

(NO) is shown in Standard Assembling Drawing.



① OUTPATIENT CLINIC

② X-LAY WARD

③ OPERATION THEATER

④ LECTURE HALL

⑤ KITCHEN

⑥ GENERATOR ROOM

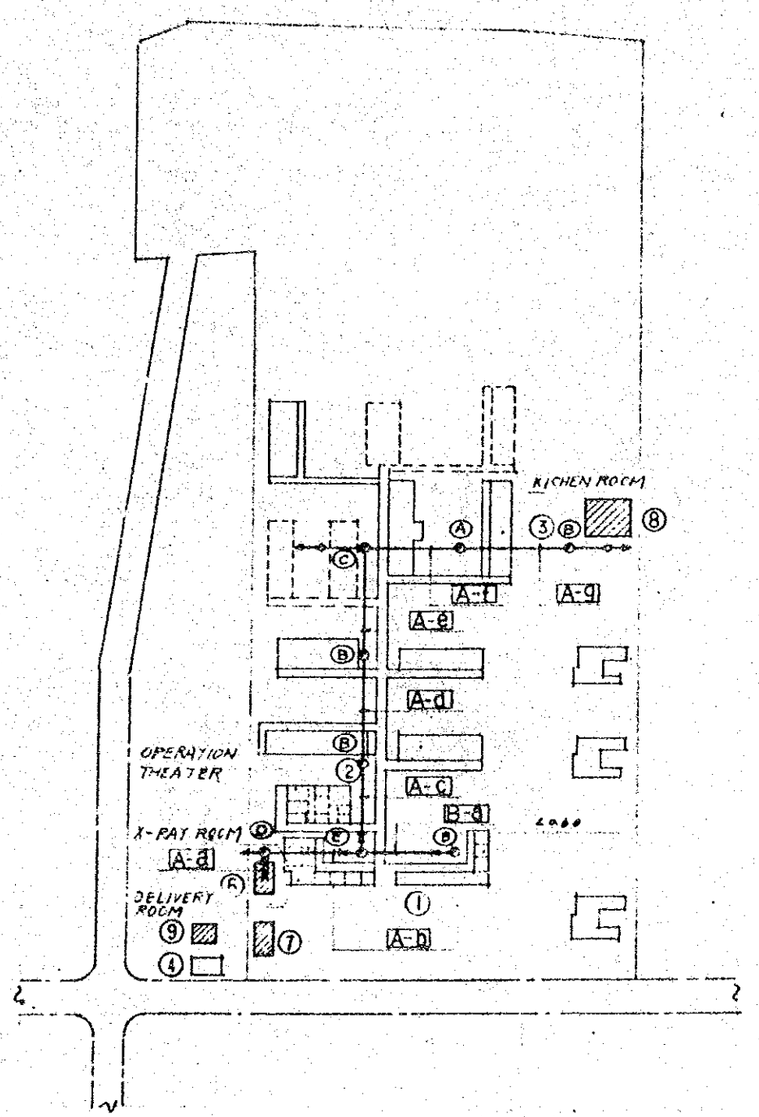
⑦ LAUNDRY

A-g	f-Co	3	3φ4W 127-220	OW	38-a
A-f	f-Co		SAME AS A-g	OW	
A-e	f-Co	13	3φ4W 127-220	OW	100-a
	f-Cm	2	3φ4W 127-220	OW	14-a
A-c	f-Co		SAME AS A-e	OW	100-a
A-d	f-Cm	7.0	3φ4W 127-220	OW	38-a
	f-Cm K	8.7	SAME AS A-d	OW	60-a
A-b	f-Co		SAME AS A-e	OW	100-a
	f-Cm		SAME AS A-c	OW	38-a
	f-Cm K		SAME AS A-c	OW	60-a
	f-m	28.3	3φ4W 127-220	OW	60-a
	f-P	3	3φ3W 220	OW	14-3
B-a	f-Co	10	3φ4W 127-220	OW	38-a
	f-Cm	7	3φ4W 127-220	OW	14-a
	f-P	5	3φ3W 220	OW	14-3
C-a	f-Xo	10	3φ3W 220	OW	38-a
	f-Xm	25	1φ2W 220	OW	100-2
	f-Cm	2	3φ4W 127-220	OW	14-a
	f-P	8	3φ3W 220	OW	14-3

A-a. A-a + B-a + C-a C.V. 4C Cable

But f-Cm ; 60-a c
f-P ; 38-3 c

(W0) is shown in Standard Assembling Drawing.



① OUTPATIENT CLINIC

② OPERATION THEATER

③ KICHEN

④ PLN TRANSFORMER

⑤

⑥ GENERATOR ROOM

⑦ NEW TRANSFORMER

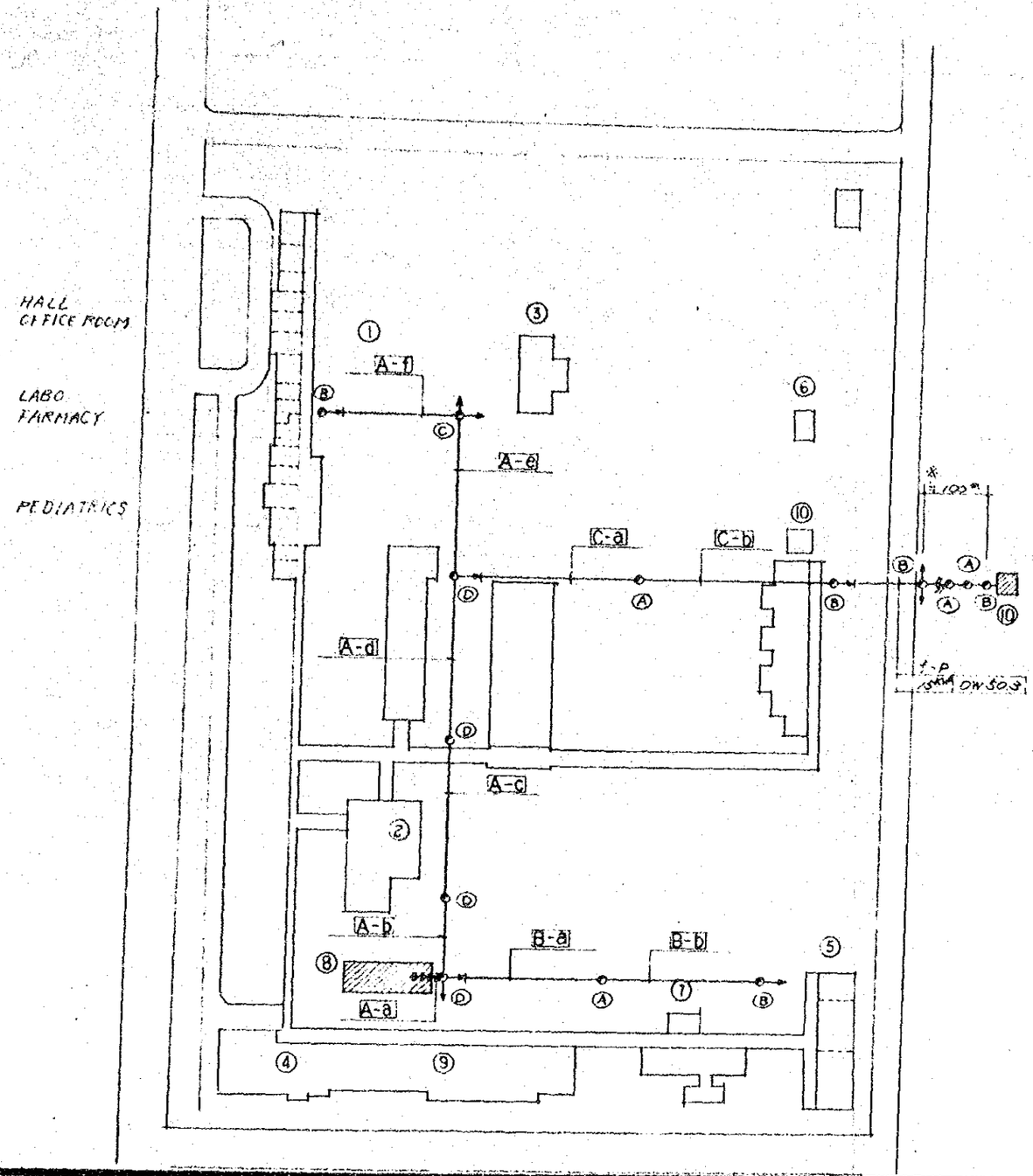
⑧ LAUNDRY

⑨ WATER TREATMENT

A-8	f-Lo	8	3φ4W 127-220	OW		38-8
	f-Lm	8	3φ4W 127-220	OW		38-8
	f-LmK	8.7	3φ4W 127-220	OW		100-8
A-f	f-Lo	10	3φ4W 127-220	OW		100-8
	f-Lm	10	3φ4W 127-220	OW		100-8
	f-LmK	8.7	3φ4W 127-220	OW		100-8
A-e	f-Lo	10	SAME AS A-1	OW		100-8
	f-Lm	10	SAME AS A-1	OW		100-8
	f-LmK	8.7	SAME AS A-8	OW		100-8
A-d	f-Lo	20	3φ4W 127-220	OW		150-8
	f-Lm	10	3φ4W 127-220	OW		100-8
	f-LmK	8.7	SAME AS A-1	OW		100-8
A-C	f-Lo	28	3φ4W 127-220	OW		150-8
	f-Lm	20	3φ4W 127-220	OW		150-8
	f-P	9.6	3φ3W 220	OW		38-3
	f-LmK	8.7	SAME AS A-8	OW		100-8
	f-m	82.5	3φ4W 127-220	OW		150-8
B-A	f-Lo	5	3φ4W 127-220	OW		22-8
	f-Lm	5	3φ4W 127-220	OW		22-8
	f-Lo	20	3φ4W 127-220	OW		100-8
	f-P	6	3φ3W 220	OW		22-8

A-b	f-Lo	30	3φ4W 127-220	OW		150-8
	f-Lm	25	3φ4W 127-220	OW		150-8
	f-P	15.6	3φ3W 220	OW		60-3
	f-RK	8.7	3φ4W 127-220	OW		100-8
	f-m	82.5	3φ4W 127-220	OW		150-8
	f-Lo	20	3φ4W 127-220	OW		100-8
	f-Xo	6	1φ2W 220	OW		22-2
	f-Xm	62	3φ4W 220	OW		100-8
A-a	Same as A-b ; CV 40					

④ is shown in Standard Assembling Drawing.



① OUTPATIENT CLINIC
② OPERATION X-RAY WORD
③ DENTAL WARD
④ KITCHEN
⑤ LECTURE HALL
⑥ EXISTING GENERATOR WORD
⑦ OBSTETRICS
⑧ GENERATOR ROOM
⑨ LAUNDRY
⑩ WATER TRETMENT

			KVA			
A-f	f-La	5		3ΦW 127-220	OW	38 - 4
	f-Lm	10		3ΦW 127-220	OW	60 - 4
	f-La	10		3ΦW 127-220	OW	60 - 4
	f-P	6		3ΦW 220	OW	38 - 4
	f-m	28.3		3ΦW 127-220	OW	150 - 4
A-e	f-La			SAME AS A-f		
	f-Lm			SAME AS A-f		
	f-La			SAME AS A-f		
	f-P			SAME AS A-f		
	f-m			SAME AS A-f		
C-b	f-La	5		3ΦW 127-220	OW	38 - 4
	f-Lm	7		3ΦW 127-220	OW	14 - 4
	f-P	15		3ΦW 220	OW	60 - 3
C-a	f-La			SAME AS C-b		
	f-Lm			SAME AS C-b		
	f-P			SAME AS C-b		
A-d	f-La	10		3ΦW 127-220	OW	60 - 4
A-c	f-Lm	12		3ΦW 127-220	OW	60 - 4
	f-La	10		3ΦW 127-220	OW	60 - 4
	f-P	21		3ΦW 220	OW	100 - 3
	f-m			SAME AS A-f	OW	150 - 4
A-b	f-La	10		SAME AS A-d	OW	60 - 4
	f-Lm	12		SAME AS A-d	OW	60 - 4
	f-La	10		SAME AS A-d	OW	60 - 4
	f-P	21		3ΦW 220	OW	100 - 3
	f-m	28.3		SAME AS A-f	OW	150 - 4
	f-Xa	3		1ΦW 220	OW	14 - 2
	f-Xm	32		3ΦW 220	OW	100 - 4
B-a	f-La	5		3ΦW 127-220	OW	22 - 4
B-b	f-Lm	5		3ΦW 127-220	OW	22 - 4
	f-m	3		3ΦW 127-220	OW	14 - 4
	f-LmK	8.7		3ΦW 127-220	OW	38 - 4

A-A = A-b + B-a CV 4C Cable
but f-La, f-Lm ; 100 - 4C

(We) is shown in Standard Assembling Drawing.
※ Outside is included in construction.

4-10 Running Cost for Generator

4-10 Running cost for generator

Running cost of generator varies according to the output of a prime motor.
General types are listed below.

(1) 500 KVA non-utility generation installation
584ps x 180g/ps.h ÷ 0.85 (specific gravity) ≒ 124ℓ
124ℓ x 7 hours = 868ℓ
868ℓ x 40rp = 34,720rp/7hours

(2) 250 KVA non-utility generation installation
300ps x 200g/ps.h ÷ 0.85 ≒ 71ℓ
71ℓ x 7 hours = 497ℓ
497ℓ x 40rp = 19,880rp/7 hours

(3) 150 KVA non-utility generation installation
180ps x 220g/ps.h ÷ 0.85 ≒ 47ℓ
47ℓ x 7 hours = 329ℓ
329ℓ x 40rp = 13,160yen/7 hours

(4) 150 KVA x 2 non-utility generation installation
180ps x 220g/ps.h 0.85 ≒ 47ℓ
47ℓ x 24 hours = 1,128ℓ
1,128ℓ x 40rp = 45,120rp/24 hours

Running cost estimated value

	P.L.N (RP)	Generator (RP)	Total	Estimated change range (Approximately)
Gunung Wenang	1,663,200		1,700,000	110 ∿ 120%
Tondamo	511,200		510,000	12%
Kotamobagn	"		"	"
Gorontalo	"		"	130%
Kendage	295,200		300,000	"
Ujung Pandang	1,663,200		1,700,000	110 ∿ 115%
Watam Pone	* 86,400	676,800	760,000	80 ∿ 100%
Soppen	* "	"	"	70 ∿ 90%
Pare Pare	712,800		710,000	110%
Rant Pao	* 86,400	676,800	760,000	80 ∿ 100%
Palopo	**	1,353,600	1,353,600	60 ∿ 90%
Banteng	86,400	676,800	760,000	110 ∿ 140%
Ta Y Tung	511,200		510,000	120%∿
Sianter	712,800		710,000	110 130%
T. Tingg:	295,200		300,000	110%
Tangum Barai	"		"	"
Kisaran	511,300		510,000	120%
Rantanprapat	**	1,353,600	1,353,600	60 ∿ 80%

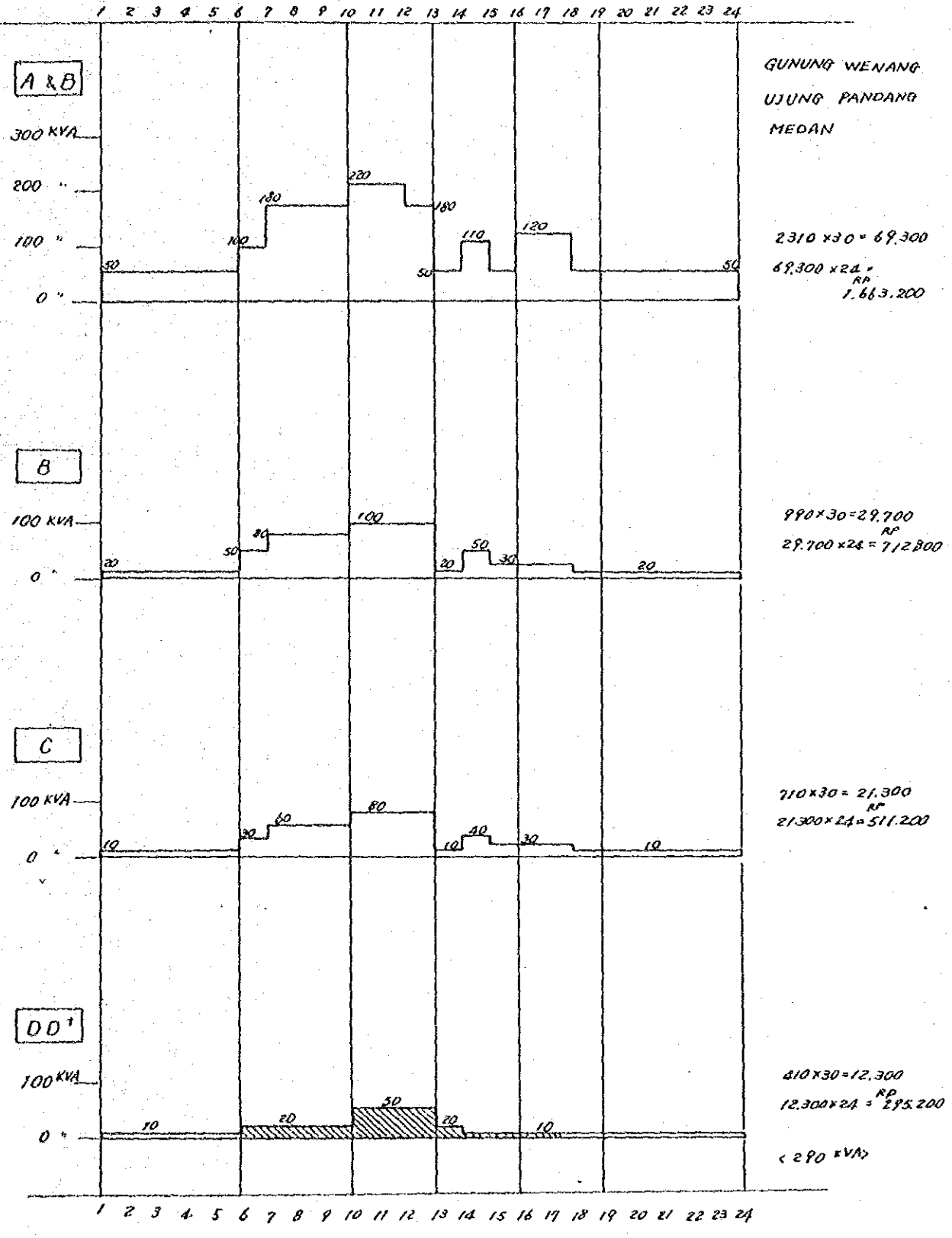
Estimated running cost of generator

* indicates 24 hour operation

** indicates 6 ∿ 18 hour operation

$$\text{running time} \times \frac{180 \times 0.22}{0.85} \times 24 \text{ hour} \times 30 \text{ day} \times 4.0\text{rp}$$

RUNNING COST / POWER UNIT COST



4-11 Work Sharing by local currency and foreign exchang for electric facilities

A. Division of work

The division of work is illustrated or listed in the division of work (1) through (3) in the attached sheets.

B. Essential points of individual division points

(1) Locations of substation room and generator room

(a) It should be understood that the locations shown in the attached external wiring diagram have priority.

(b) Necessary building in question shall be constructed by local currency

(c) The electric lights, power, water supply, drainage and natural ventilation system, etc needed for the building shall be installed by local currency

(d) Opening work on the walls of the building for lead-in and going-out of wiring and conduits, and their curing shall be carried out by local currency

(2) The transformer to be installed in the substation room shall have the rated capacity based on the attached contracted capacity calculation sheet and shall be installed by the local currency

(3) The supply meter and other instruments shall be provided in the generator room.

(4) The earth bus with the earth resistance, less than 10 ohm, which is made of the insulated cable with a size of more than 50 mm^2, shall be provided in the substation room and the generator room by the local currency

(5) When the wire is branched from the external line in the yard, all necessary works shall be conducted by local currency (Hereinafter, the external line in the yard is

referred to as the main line.).
The following points should be taken into account in performing the branch work.

(a) Selection of size for branch line

The insulated cable having an allowable current value of more than 55% of the tripping current value of the feeder breaker (specified in the volume for Data, (1) - (c), the breaker capacity list by line) in the connecting main line shall be the minimum size cable.

(b) The cable length of one line from the branched point up to the indoor panel should be within 30 meters.

(c) In case a cable having a size less than specified in (a) is needed for the work, a breaker may be provided near the branched point and a cable size shall be within a range of protection by the breaker.

(d) PVC insulation cable for 600V or above should be used for the branch connection line in order to maintain the insulation resistance harmony.
The work for the connection line should be conducted so as to maintain the insulation effect and connection resistance of the joint equal to or above the respective values for the line.

(e) The branched line should be supported in such a manner as it does not give a tension directly to the main line. As a rule, the support lines should be fixed in a direction opposite to the tension direction of the branched line, and this work shall be conducted by local currency

(f) An insulation separation for the branched line and main line should be more than 100 mm except the case of same line and same phase, or the line should be protected with a protector which withstands 600V.

(g) The phase sequence and line classification of the main line shall apply to the work for the branched line.

(h) All works for panels such as indoor cabinet panel, power panel, branch panel and switch panel, etc. shall be carried out by local currency no matter they are new or existing.

(i) At the time of indoor work, a voltage drop at each terminal shall be controlled to be below 2%.

(j) The minimum size cable for the indoor work shall be a single wire having a diameter more than 1.6 mmφ or a stranded cable having an area more than 3.5 mm^2.

(k) A size for cables for the indoor work shall be in accordance with the specifications stipulated in (g). In addition, use a cable with an area more than 5.5 mm^2 for the mechines, equipment and receptacles.

(l) Select and mount the switches for the indoor work, which withstand a short-circuit current more than 5,000A, in order to keep the insulation harmony.

(m) An insulation resistance value for the indoor work shall be controlled to be more than 10 MΩ as a minimum.

(n) With regard to the indoor work, especially, the work for the lines (f-Lo, f-Ln, f-m, f-La, f-Xo and f-Xn) which are frequently under single phase load, it is recommended that the load connection of each phase on the power transformer side be designed to be under normal balanced load and the connection distribution be adopted as much as possible.

(o) In order to minimize a voltage drop, to keep the insulation harmony and to safely maintain the supply reliability of the lines on the whole, make the following items the key points.

° Selection of adequate cable size and strong supports.

° Insulation protection harmony and control of temperature rise of insulators at the time of short-circuit trouble.

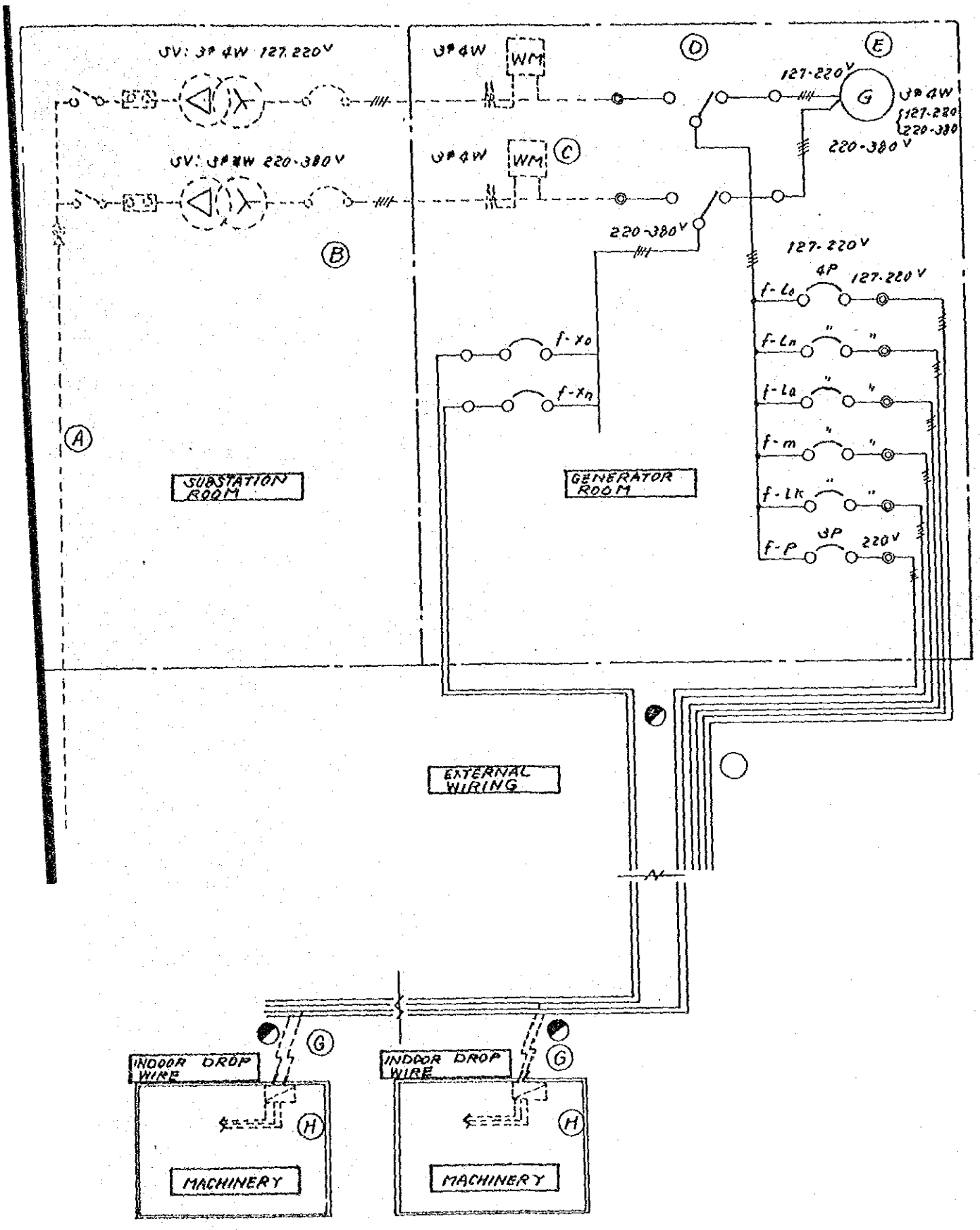
° An economical wiring and early cut-off of troubled section by means of selective cut-off system.

° Prevention of trouble to be extended to the sound sections.

With full understanding by the Indonesia side on our design, selection of machines and equipment and construction, every possible effort shall be made to repair the electrical facilities, harmonizing the indoor repair work with the repairing work of power source and distribution network.

(P) It should be kept in mind that earthing work of the medical equipment to be installed indoors with a cable more than 3.5 mm^2 without fall is conducted by local currency.
Furthermore, the main earth line should have the earthing polarity numbers to ensure the equipotential distribution and be made of bus more than 14 mm^2 with the earth resistance more than 10Ω.

Division of Work (1)



Division of Work (2)

Example	Main work description and scope	Main work item					Remarks
		Building	Machinery	Wiring	Piping	Installation	
Ⓐ	Lead-in of high voltage cable			①			
Ⓑ	Installation of substation equipment	①	①	①	①	①	
Ⓒ	Take out from the substation room. Mount the supply meter and connect the connect the primary terminals and switches in the generator room		①	①	①		
Ⓓ Ⓔ	Switchboard, generator, engine, feeder panel, charging equipment, oil tank and other associated piping connection	①	②	②	②	②	However, 2 shall apply to arrangement and mounting of acoustic material in the generator room.
Ⓕ	Taking-out from the secondary-side terminal of each MCB of the feeder panel. Connection to the external lines in the yard, erection of poles and aerial lines.		③	③	③		
Ⓖ	Lead-in portion branched from the external line in the yard up to the indoor panels.	①	①	①	①		
Ⓗ	All indoor work connecting to the lead-in portions.		①	①	①	①	

Division of Work (3)

Work by local ucrrency		Indicated by a dotted line ①	- - - - - -
Work by foreign exchange	Work for generator	Indicated by a solid line ②	———
	Work for external line	Indicated by a solid line ③	———

4-12 List of Equipment in Workshop

4-11-1 Workshop Tools, Materials and Fixtores List

4-11-2 Equipment Selection List

a) Electrical Work Room Equipment

b) Mechanical Work Room Equipment

c) Carpenter's Work Room Equipment

d) Layout Plan

4-12-1 Work Room Tools, Materials and Fixtores List

	List item			
	Electrical work room	Mechanical work room	Carpenter's work room	
Gunung Wenang	All	All	All	
Tondano	③ ④ ⑦ ⑪	-	-	
Kotamo bagu	↑	-	-	
Gorontalo	↑	-	-	
Kendage	↑	-	-	
Ujung pandang	All	All	All	
Watam pone	③ ④ ⑦ ⑪	-	-	
Soppeng	3 4 7 11	-	-	
Pare pare	↑	-	-	
Rant pao	↑	-	-	
Palopo	↑	-	-	
Bantaeng	↑	-	-	
Medan	All	All	All	
Tartung	③ ④ ⑦ ⑪	-	-	
Porsea	↑	-	-	
Sianter	↑	-	-	
T.Tinggi	↑	-	-	
Tanjung Bali	↑	-	-	
Kisaran	↑	-	-	
Ran tan Prapat	↑	-	-	

4-12-2 Equipment Selection List

a. Electrical Work Room Equipment

	Nomenclature	Specification	Description	Q,ty	Remarks
1	Live wire insulating unit	Phase wiring system	1φ2w, 1φ3w, 3φ3w	1	
		Measured value	0.005 ∿ 1 MΩ		Accessories: Lead 3c - 2m 1
		Measuring power source	127/220 50 mg		Clamp type ZCT 1
			With leather bag		Voltage detector 1
2	Leak tester	Power source	AC 50MZ 127/220/380V	1	
		Measuring amperage	5,∿1000mA 9 Range change		
		Measurement of working time	0∿999 ms		
		Accuracy	Current ± 2.5% measurement		
			Time ± 1%		
		Dimensions	295(m)×215(m)×145 (D)		
3	Tester	Power source	Two single Dry cells 1.5 ×1	1	
		Measured value	DCV=0.12∿1200V 9 Range		Accessories: Lead 1
			DCA=1.2 ∿300mA 1.2∿6A 6 Range		Fuse 20
			ACV=3∿1200T 6 Range		
			Resistance=2kΩ ∿ 20,000kΩ 5 Range		
			dB=-20∿+63dB		
			SIS C1202		
			With carrying case		
4	Clamp meter	Power source	Mercury cell 1.3r×1	2	
		Measured value	ACA=6∿300A 5 Range		Accessories
			ACV=150∿600V 3 Range		Temperature globe 1
			Resistance=0∿50kΩ		Tester lead 2
			Temperature= -20°C ∿ +150°C		Mercury cell 1.3V 5 (spare)
			With carrying case		

	Nomenclature	Specification	Description	Q,ty	Remarks
5	Earthing resistance tester	Power source Measured value	Two single Dry cessl × 3 No.1 Range 0∿10Ω No.2 Range 0∿100Ω 3 Range No.3 Range 0∿1000Ω Earthing AC voltage 0∿30Ω 1 Range With carrying case	1	Accessories Cord for measurement 3 Earth bar 2
6	Insulation resistance tester	Power source Measured value With carring case	With charger 50Hz 127/220V 1000V - 2000 mΩ	1	Cable for measurement (with clips) ℓ=5m 1
7	" " "	Power source	With charger 50Hz 127/220V 500V - 1000mΩ	1	Cable for measurement (with clips) ℓ=5m 1
8	Phase detector	Power source	110∿450V 50Hz With carrying case	1	Connecting cord
9	Clamp-on high tester	Measured value Clamp Error	DCA 100∿1000A 4 Range DCV 25∿ 500V " ACA 100∿1000A " ACV 25∿ 500 " Dimensions 40 With carrying case ±3%	1	Accessories: Test lead (with clips)
10	Tachometer	Measured value Power source Error	0∿10000 r.p.m 7 Range Direct coupling 3 single dry cells 8 ±1.5%	1	Accessories: Metal contactor 5 pcs Rubber contactor 20 pcs

	Nomenclature	Specification	Description	Q,ty	Remarks
11	Tools	Winder	3000kg Wire 25 With 2 metal wheels	1	
		Fasthener	250kg Special 2	1	
		"	500kg 3	1	
		"	1000kg 4	1	
		"	1500kg 5	1	
		Auxiliary wire gripper	3	1	
		"	4	1	
		"	5	1	
		Screw-driver for electrician	100 mm	2	
		"	150 mm	2	
		"	200	2	
		"	100 (Cross head)	2	
		"	150 (")	2	
		Insulated pinchers	175 mm	2	
		"	200 mm	2	
		Knife with double edge		2	For electrician
		Water pump pliers	250 mm	2	
		Radio pliers	150 "	2	
		Nipper (with hole)	150 "	2	
		Monkey wrench	150 "	2	
		"	250 "	2	
		"	375 "	2	
		Vice	150 "	2	
		Torch lamp	For gasoline For 1ℓ	3	With total of 30 sets of needle nozzle and pump packing
		Wire stripper	5.5° 170	2	
		Pressure pliers	8 mm^2 Less than	2	

	Nomenclature	Specification	Description	Q,ty	Remarks
11	Tools	Manual pressure large size tool	8∿80 mm^2	1	
		Tool box for electrician	Leather case one tool helder, large, medium and small	7	
		Safety belt	Free type with rope	3	
		Threading machine	Oster type C15∿ electrician C75mm	1	With set case: for conduit
		Pipe vice with legs	15∿100mm	1	With table (travelling type)
		Bender	C19∿C31 mm	1	With handle =1.2∿1.5 mm
		"	G16∿G28	1	
		Solder	Special No.0 (tin containing, high quality for electrician	30kg	
		Paste	For electrician	10z	
		Wire	1v 1.6mm 300 boudle	5 boudle	
			2.0 mm "	5 "	
			2.0 mm^2 "	5 "	
			3.5 mm^2	5 "	
			5.5 mm^2	5 "	
			8 mm^2	5 "	
		F cable	VA Flat type 1.6-2C 300 boudle	10 boudle	
			2.0-2C "	10 "	
		CV cable	5.5-4C 300 boudle	5 boudle	
			8 -4C "	5 "	
		Pressure sleeve	1.6×2 100	3	
			2.0×2 "	3	
			3.5×2 "	3	
			5.5×2 "	3	
			5.5×4 "	3	
			8 ×2 "	3	

	Nomenslature	Specification	Description	Q,ty	Remarks
11	Tools	S sleeve	1.6	3	
			2.0	3	
		Slide transformer	30A 3KVA Input 110/220 50Hz Output 0∿130V/ 0∿260V	1	
		Detector	600V	5	
b.	Mechnical Work	Equipment List			
	Nomenslature	Specification	Description	Q,ty	Remarks
1	Shaper	Stroke length	380 mm	1	With accessories: Rotary vice table
		Vertical movement	180 mm		
		Machining length	300 mm		Standard tools
		Table dimensions	250×260 mm		
		Power source	3ϕ 50Hz 0.75kw 200∿220V		
		Installation dimensions	540×1000mm 1020kg		
2	Heating furnace for quenching (Electric furnace)	Furnace dimensions	200W×150 ×300 mm	1	Heating unit spare set
		Furnace internal temperature	0∿1000°C		With temperature indicator
		Heating element	Non-ferrous metal (silicon carbide)		With standard tools
		Furnace temperature control	Set value, variable SCR automatic control		
		Heat-up time	0→1000°C ÷ 3		
		Power source	200-220V 3kw 1 ϕ		
		Dimensions			
3	Double-head grinder	Grind stone dimensions	150ϕ×16×12.7ϕ mm	1	With grind stone spare set
		Rotational frequency	50HZ 2970 r.p.m		150 mm Rough 20 Finish20

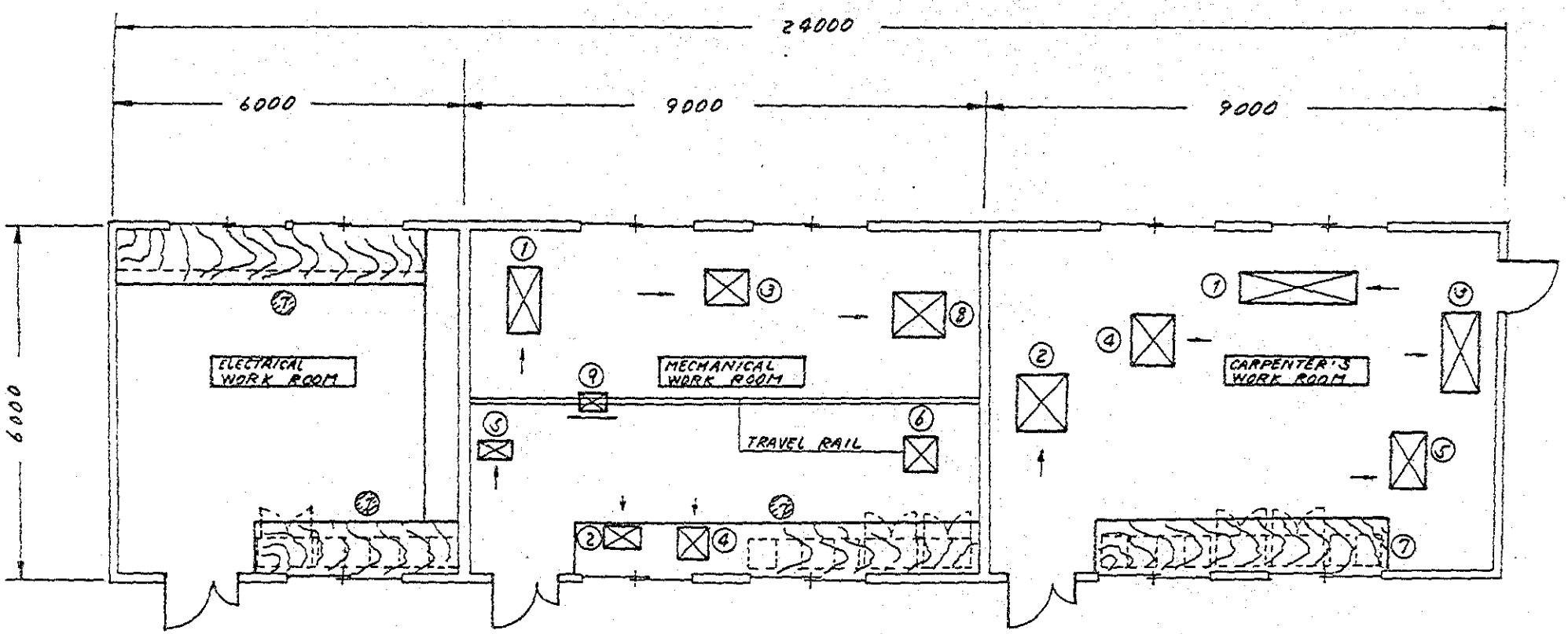
	Nomenclature	Specification	Description	Q,ty	Remarks
3	Double-head grinder	Dimensions	358×200 mm 14.5kg		With standard tools
		Power source	3 ϕ 50HZ 290W 200∿220V		With floow stand (incl. water reservoir)
4	Sawing machine	Sawing dimension	SS41 175 ϕ For pipe	1	With spare set Saw edge 20
		Saw edge dimension	350×25 mm		With standard tools
		Stroke	9551 min 50HZ		
		Dimensions	820×370 mm 35kg		
		Power source	1 ϕ 200∿220V		
5	Tool frinder	Table swing	260 mm	1	With complete set of standard accessories
		Table stroke	Lateral 250 mm Longitudinal 180 mm Swing angle: 5° for right and left		Spare grind stone (flat) 20
					Spare grind stone (disc) 20
		Grind stone dia	150ϕ×31.75×13 ϕ mm		Blade with edge 20
		Rotational frequency	50HZ 3,400 r.p.m		Special accessories 1
		Dimensions	900×1050 mm 260kg		
		Power source	3 ϕ 200W 200∿220V		
6	Bench drill	Rotational frequency	50HZ 360, 700, 1200, 2400 r.p.m	1	Accessories
		Swing	430 mm		Drill check 5∿16mm 2
		Stroke	Up to base 480mm Up to base 660mm		Drill for iron work 1 mmϕ∿16 mmϕ
		Table dimensions	300×300 Square table		Turntable for drill check 2
		Dimensions	≒ 600×800 145kg		
		Power source	3ϕ 50HZ 400W 200∿220V		

	Nomenclature	Specification	Description	Q,ty	Remarks
7	AC arc welding machine	Output current	400A	1	Accessories
		Output	19kw		Power cable 5m
		Input	33kvA		With output cable holder 5m
		Output voltage	81V		
		Input voltage	1 ϕ 200 220V 50HZ		Protective surface 3
		Dimensions	455 650 mm 175kg		Protective glass 20
			With lightening arrestor		
		Covered electrode		1	2.0, 2.6, 3.2, 4.0t 300kg
8	Hoist (general type)	Lifting weight	2 ton	1	Accessories
		Stroke	5 m		Power cable 15m
		Lifting	Motor driven 50HZ 7.5m/min		Rail ℓ-9m Completeset with installation fixtures (with stopper)
		Travel	Motor driven		
		Rail	Beam, I-steel 170kg		
		Dimensions	1075×900 370kg		I-steel 150×75×8.5
		Power source	3ϕ 50HZ 3.7kw 200∿220V		
		Gross weight	≒ 600kg		
9	Tools	Set		1	
		Vice	Round barrel type side vice 150 mm	2	
		"	Universal milling vice 105 mm	1	
		Gear puller	G-8 200 ϕ	1	
		Pipe range	900 mm	1	
		"	300 mm	1	
		Oster type	114R 15A∿50A	1	Spare edge (2 pcs for each size)
		"	115R 65A∿80A	1	
		Pipe cutter	2 #	1	Spare edge (2 pcs for each size)
		"	3 #		
		Pipe vice	# 2 10A∿90A	1	With legs
		Hack saw frame	Pipe	3	Saw edge

c. Carpenters's Work Equipment List

	Nomenclature	Specification	Description	Q,ty	Remarks
1	Hard planer	Machining width	300 mm	1	Complete set of spare edge
		Planer barrel	D ϕ 108 mm		Edge 300 mm 3
		Rotational frequency	50HZ 5000 r.p.m		
		Table	330×1800 mm		
		Power source	3ϕ 50HZ 1.5kw 200∿220V		
		Installation dimensions	720×1880 mm 620kg		
2	Automatic planer	Machining width	400 mm 150 mm	1	Complete set of spare edge
		Rotational frequency	50HZ 5000 r.p.m		Edge 400 mm 3
		Feed speed	12,16 m/min		
		Power source	3ϕ 50HZ 2.2kw 200∿220V		
		Installation dimensions	870×970 750kg		
3	Manual planer knife grinder	Grinding width	Length 600 mm Width 100 mm	1	Spare grind stone
		Rotational frequency	50HZ 1450 r.p.m		Grind stone Flat: 300mm 10
		Bed length	1200 mm		Cup : 100mm 5
		Power source	3ϕ 50HZ 0.75kw 200∿220V		
		Installation dimensions	1500×760 mm 600kg		
4	Universal round sawing machine	Saw length	400 mm ϕ	1	With complete set of spare saw edge (BS)
		Saw shaft dia	25.4 mm ϕ		With tenoher
		Sawing dimensions	125×125 mm		Chip saw 400mm 5
		Table dimensions	675×835 mm		
		Inclination angle	45°		
		Power source	3ϕ 50HZ 1.5kw 200∿220V		

	Nomenclature	Specification	Description	Q,ty	Remarks
4	Universal round sawing machine	Installation dimensions	340kg		
		Rotational frequency	3000∿3800 r.p.m		
5	Band sawing machine for carpentar's work	Saw edge dimensions	700ϕ mm Width 75mm	1	Spare saw edge
		Saw edge length	4650 mm		Saw edge 75mm 5
		Rotational frequency	420 r.p.m		
		Machining length	300×690 mm		
		Table dimensions	600×700 mm		
		Inclination angle	45°		
		Power source	3ϕ 50HZ 3.7kw		
		Dimensions	≒ 800×1000 mm		
6	Electric drill	Max. drill dia	For carpenter's work 30mm ϕ	1	1ϕ 100/200 Slide transformer 0∿130V 10∿260V
	" "	"	" 13mm ϕ	1	1ϕ "
	Drill set		For carpenter's work	1	1mmϕ∿13mmϕ 50 15mmϕ∿30mmϕ 20
7	Vice for carpenter's work	Freely rotatable	Bore 75mm Opening 63mm	1	
8	Carpenter's work set			1	



① SHAPER
② HEATING FURNACE FOR QUENCHING
③ TOOL GRINDER
④ DOUBLE-HEAD GRINDER
⑤ SAWING MACHINE
⑥ BENCH DRILL
⑦ WORK BENCH
⑧ ARC WELDING MACHINE
⑨ HOIST

① HAND PLANER
② AUTOMATIC PLANER
③ PLANER KNIFE GRINDER

④ ROUND SAWING MACHINE
⑤ BELT SAWING MACHINE
⑥
⑦ WORK BENCH

WORK ROOM LAYOUT PLAN