

**WATER SUPPLY SYSTEM**

**1. Water Supply Method**  
 a City water direct connection method  
 a Elevated water tank method  
 a Pressure pump method  
 a Pressure tank method  
 a Water storage tank : Capacity \_\_\_\_\_ m<sup>3</sup>  
 a High capacity water tank : Capacity \_\_\_\_\_ m<sup>3</sup>

**2. Source of Water**  
 a City water a Well water a River water a Industrial water

**3. Elevated Water Tank**  
 a Materials a FRP ( a Single panel a Sandwiched panel )  
 a Steel plate a Stainless steel plate

**4. High Capacity Water Tank**  
 a Materials a FRP ( a Single panel a Sandwiched panel )  
 a Steel plate a Stainless steel plate

**5. Pressure Water Tank**  
 a Materials a Steel plate

**6. Pumps**  
 a Vibration-free foundations a Rubber compound a Springs  
 a Rubber mat a Cork board

**7. Filter Materials**  
 a Vibration-free supports a Rubber compound a Springs  
 a Valve a Gate valve a Butterfly valve a Ball valve  
 a Withstand pressure of valve a JIS 10 kg/cm<sup>2</sup> a JIS 5 kg/cm<sup>2</sup> a Otherwise

**8. Heat-Proof Covering**  
 a Covering materials a Rockwool blanket a Glasswool blanket  
 a Thickness a City water a Well water a Cold region  
 a Surfacing materials a Interior exposed-to-view water pipe  
 a Cotton cloth a Non-combustible cotton cloth  
 a Vinyl tape  
 In ceiling shaft  
 a Non-combustible cotton cloth a Vinyl tape  
 a Cotton cloth  
 In wet area  
 a Galvanized iron sheet a Asphalt-impregnated jute  
 a Vinyl tape a Stainless steel sheet a Aluminium sheet  
 Exterior exposed-to-view water pipe  
 a Galvanized iron sheet a Stainless steel sheet a Aluminium sheet a Asphalt-impregnated jute

**9. Insulation**

**Hot-Water Storage Tank**  
 a Materials a Steel plate a Stainless Steel plate

**Hot-Water Storage Tank, Indirect-Heating Type**  
 a Materials a Steel plate a Stainless steel plate  
 a Heat Source a Steam a Hot water

**Heat Exchanger**  
 a Materials a Steel plate a Stainless steel plate  
 a Heat Source a Steam a Hot-water

**Heat-Proof Treatment**

**Water "B"**

**Electric Heater**

**Circulation Pump**

**Storage Pump**

**Expansion Water Tank**  
 a Materials a Steel plate a Stainless steel plate a FRP

**Oil Storage Tank**  
 a Heating Apparatus a Exterior Underground Type ( a FIT type a Croquette type ) a Above-ground type a Interior type  
 a Interior Coating a Heat Apparatus a Steam a Hot water a Electricity

**Oil Service Tank**  
 a Materials a Steel plate a Stainless steel plate  
 a Heating Apparatus a Steam a Hot water a Electricity

**Oil Level Gauge**  
 a Absolute indication a Float type a Air purge type

**Flow Meter**

**Piping Materials**  
 a Valve a Gate valve a Butterfly valve a Ball valve  
 a Withstand pressure valve a JIS 10 kg/cm<sup>2</sup> a JIS 5 kg/cm<sup>2</sup>  
 a Expansion Joint a Ball joint a Victrolite type a Ballon type a Sleeve type

**Insulation**  
 a Heat Exchanger a Covering material a Glasswool a Insulating material a Galvanized iron sheet a Stainless steel sheet a Aluminium sheet a Fluorocarbon coating a Cotton lute  
 a Expansion Water Tank  
 a Pipe Line a Covering material a Rockwool a Glasswool a Thickness a General Area a Cold region  
 a Surfacing material  
 Interior exposed-to-view pipe  
 a Cotton cloth a Non-combustible cotton cloth a Vinyl tape  
 In ceiling shaft  
 a Cotton cloth a Non-combustible cotton cloth a Vinyl tape a Resin sheeting  
 In wet area  
 a Galvanized iron sheet a Stainless steel sheet a Asphalt-impregnated jute a Vinyl tape  
 Exterior exposed-to-view pipe  
 a Galvanized iron sheet a Stainless steel sheet a Aluminium sheet

**10. Fill**  
 a Sewage pits  
 Materials of cover a Concrete a Cast iron a Reinforcing type a Heavy duty type a Medium duty type a Light duty type  
 a Drain pipe  
 Materials of cover a Concrete a Cast iron a Reinforcing type a Heavy duty type a Medium duty type a Light duty type

**11. Non-Insulation Covering**  
 a Covering Material a Rockwool a Glasswool a Thickness a City a Cold region  
 a Surfacing Material  
 Interior exposed-to-view pipe  
 a Cotton cloth a Non-combustible cotton cloth a Vinyl tape  
 In ceiling shaft  
 a Cotton cloth a Non-combustible cotton cloth a Vinyl tape  
 In wet area  
 a Asphalt-impregnated jute a Galvanized iron sheet a Stainless steel sheet a Aluminium sheet

**12. SANITARY FIXTURES**

**1. Porcelain Fixtures and Accessories**  
 a Grades a JIS No.1 a Standard

**2. In-Place Materials of Fixtures**

Fixture	Position	Height in mm		
		Men	Women	Children
Wall-mounted urinal	From floor top to the fixture's front top edge	550	-	An specified noted otherwise
Wash basin	" "	760	760	
Lavatory	" "	1150	1150	
Sink top	From floor top to the tap's outlet bottom edge	300	300	
Top, bath tub	From the tub's top edge to the tap's outlet bottom edge	75	75	

However, the above-mentioned values are standard values, and in actual installation, the Contractor shall comply with the directions of the Engineer for the determination of individual heights.

**13. DRAINAGE WORK**

**1. Wall Drain**  
 a Diameter \_\_\_\_\_ in diameter  
 a Depth \_\_\_\_\_ in depth

**2. Submerged Pump**  
 a Submerged pump \_\_\_\_\_ in diameter  
 a Water capacity \_\_\_\_\_ l/min. a Lift \_\_\_\_\_ meters  
 a Power \_\_\_\_\_ W

**3. Control Panel**  
 a Alarm type a Low level type  
 Cable from the submerged pump to the control panel shall be installed without any joint.

**14. DRAINAGE AND VENT SYSTEM**

**1. DRAIN MAINS**  
 a Above Ground Level - Interior a Sewage line a Drainage line a Rainwater drain line  
 a Underground - Interior a Sewage pit a Drain pit a Rainwater catch basin  
 a Exterior a Sewage line a Drainage line a Rainwater catch basin a Combined system line a Split system line

**2. Piping Materials**  
 All piping materials used shall be as indicated on the drawings.

**3. Pumps**  
 a Automatic oil refueling equipment  
 a Vibration-free foundations a Rubber compound a Springs

**15. FIRE EXTINGUISHING SYSTEM**

**1. Types of Fire Extinguishing System**  
 a Interior fire hydrants and cabinets ( a Automatic a Semi-automatic )  
 a Sprinklers a Branchers a Open type a Closed type a Downward-pointed type a Upward-pointed type  
 a Foam type fire extinguishing system  
 a Water-spray type extinguishing system  
 a Carbon dioxide gas type fire extinguishing system  
 a Halogen type fire extinguishing system  
 a Powder type fire extinguishing system  
 a Exterior fire hydrants  
 a Coupling water pipe  
 a Water outlets  
 a Coupling sprinkler system

**2. Pumps**  
 a Fire hydrants a Sprinklers a Combination sprinkler  
 a Emergency Power Source ( a Generator a Battery )

**3. Piping Materials**  
 a Valves a Gate valve a Butterfly valve a Cast steel valve  
 a Withstand pressure valve  
 a Non-Insulation Covering  
 a Required a Not-required  
 a Similar to the Section: WATER SUPPLY SYSTEM  
 a Mount Stop for Fire Extinguishing System

**16. GAS SUPPLY SYSTEM**

**1. Types of Gas**  
 a City Gas a L.P. Gas a Natural Gas  
 a California power 21,000 kcal/m<sup>3</sup> kcal/kg

**2. Gas Pressure**  
 a High pressure a Medium pressure a Low pressure

**3. Services**  
 a Provided a Not-provided

**4. Pressure Regulation Valve**  
 a Provided a Non-provided

**5. Gasometer**  
 a Gasometer heat source a Electricity a Gas

**6. Expansion Joint**  
 a Materials a Ballon type a Sleeve type

**7. Installation of Piping**  
 a All piping shall be installed as specified by the Gas Supply Provision of the Gas Utility concerned.

**8. Gas Meter**

**17. APPOINTMENTS**

**1. Elevated Water Tank**  
 a Mobile ( Lock type ) Surge control diaphragm  
 a Ramped ladders ( Interior, exterior )

**2. Pressurized Water Tank**  
 a Sight level gage ( with cock and protective stick )  
 a Mobile or Road hole Pressure gage or Level gage  
 a Safety valve

**3. Hot-Water Storage Tank and Indirect-Heating Hot-Water Storage Tank**  
 a Thermometer ( \_\_\_\_\_ tube dial indicator )  
 a Pressure gage or Level gage ( with syphon pipe and cock )

**4. Oil Storage Tank**  
 a Level gage ( with cock and protective mesh or observation gage )  
 a Vent pipe ( with inflammation preventive device )  
 a Leak detector ( if equipped an underground tank )  
 a Coupling for oil replacement  
 a Manhole and inspection cover

**5. Oil Service Tank**  
 a Oil-immersed explosion-proof float switch  
 a Thermometer Level gage Manhole and inspection cover

**6. Interior Fire Hydrant**  
 a Fire hydrants ( Independent type 38 mm φ x 1.1 )  
 a Baglan type 38 mm φ x 1.1, 45 mm φ x 1.1  
 a Hose 38 mm φ x 15 m length x 1  
 a Hose coupling 38 mm φ x 1.1, Hose 40 mm length x 11.7 cm φ x 1.1  
 a Hose rack 40 mm φ x 20 (inclined hanger) x 1

**7. Lift Pump**  
 a Horizontal Valve Turbine Pump  
 a Sluice valve, Check valve ( Float valve, Pressure gage, Vacuum gage  
 a Other necessary appointments )  
 a Vertical Multistage Turbine Pump  
 a Sluice valve, Check valve ( Compound gage )  
 a Submerged Pump  
 a Sluice valve, Check valve ( Pressure gage, Level gage, Cable )

**8. Hot-Water Pump**  
 a Sluice valve, Check valve, Level gage, Pressure gage, Thermometer

**9. Shared Oil Pump**  
 a Strainer ( Multibucket )

**10. Drain Pump or Sewer Pump**  
 a Sluice type Sluice valve, Check valve, Pressure gage  
 a Submerged type Sluice valve, Check valve, Pressure gage  
 a Level gage, Cable

**11. Urinalier Pump**  
 a Sluice valve, Check valve ( butterfly type ),  
 a Float valve ( with strainer ), Pressure gage,  
 a Flexible shaft coupling

**18. EQUIPMENTS**

**1. Equipment Pool**  
 a City gas a Propane gas a Electricity a Kerosene  
 a Steam

**2. Materials**  
 a Mesh-Weaving Mesh  
 a Top board ( SUS- )  
 a Frame ( a Stainless steel plate SUS- a Steel plate )  
 a Legs ( a Stainless steel plate SUS- a Steel plate )  
 a Adjust hole ( a Provided a Not-provided )  
 a Shelf a Top plate a Decorative plate ( a Stainless steel plate SUS- a Steel plate )  
 a Pumps ( a Stainless steel plate SUS- a Steel plate )  
 a Refrigerator  
 a Door ( a Wooden a Stainless steel plate SUS- a Steel plate )  
 a Water-cooling type a Air-cooling type

**19. REQUIREMENTS**

**1. GENERAL MATERIALS**  
 a Outer Shell a Brick a Steel a Brick and Steel frame  
 a Inner Shell a RC-12 a RC-33

**2. FIBER**  
 a Materials a Steel plate a Stainless steel plate SUS-

**3. COMBUSTION MATERIALS**  
 a Material combustion type a Gas a Kerosene a Heavy oil

**4. AIR CONDITIONING**  
 a Not type a Dry type

**5. ROOFING**  
 a Materials a Stainless steel plate a Steel plate

**6. Smoke Collector**  
 a Provided a Not-provided  
 a Types a Heating type a Air-cooling type a Water-cooling type

**1. PIPING**

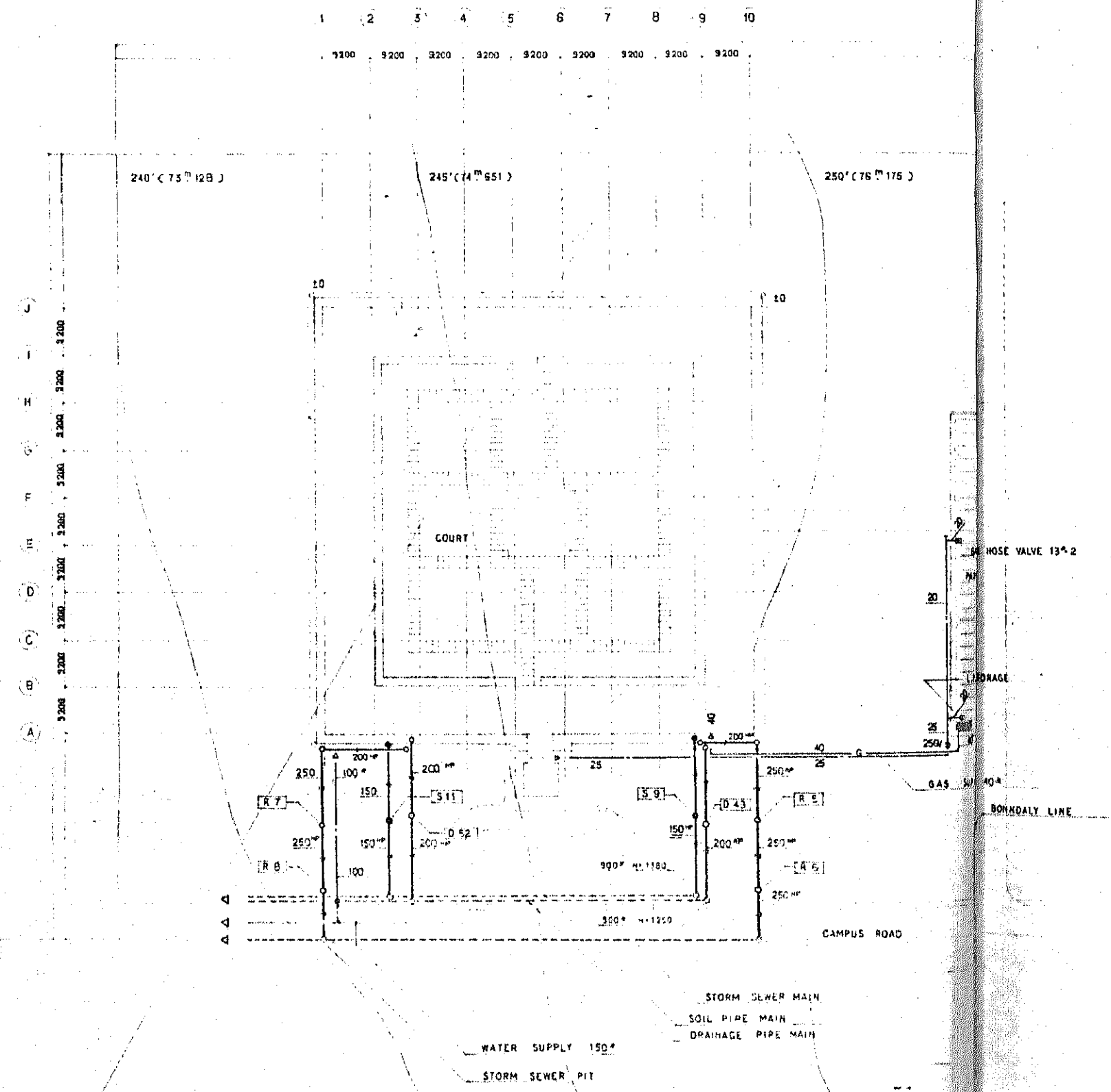
Symbol	Designation	Material	Symbol	Designation	Material	Symbol	Designation	Material
○	Water supply line	Galvanized steel pipe, hard vinyl pipe, (VINYL-LINING STEEL PIPE)	—E—	Expansion pipe	Galvanized steel pipe, steel pipe (types L and M)	—F—	Fire hydrant line (coupling water pipe)	Galvanized steel pipe, vinyl-lining pipe
—	Well water supply line	Galvanized steel pipe, hard vinyl pipe, vinyl-lining steel pipe	○—A—	Air vent	Galvanized steel pipe, steel pipe (types L and M)	—SB—	Fire hydrant line (sprinkler line)	Galvanized steel pipe, vinyl-lining pipe
—	Interior water supply line	Cast iron pipe, asbestos cement pipe, lead pipe	○—G—	Gas supply line	Galvanized steel pipe	○—H—	Fire hydrant line, interior	Galvanized steel pipe, vinyl-lining pipe
—	Other water supply lines	Galvanized steel pipe, hard vinyl pipe, vinyl-lining steel pipe	○—LP—	Lead pipe	LEAD PIPE, (VINYL VINYL PIPE)	—NF—	Fire hydrant line (for coupling with interior fire hydrants)	Galvanized steel pipe, vinyl-lining pipe
○	Hot-water supply line	Steel pipe (types L and M), galvanized steel pipe	○—S—	Sewer line	Earthenware pipe	—D—	Fire hydrant line, halogen	Carbon steel pipe for pressurized line (ASPE 10, Schedule 40)
—	Hot-water return line	Steel pipe (types L and M), galvanized steel pipe	○—	Waste line	Waste pipe, stoneware pipe	○	Where beams are indicated	
			○—	Ventilating line	Galvanized steel pipe, (VINYL VINYL PIPE)			

**2. Valves and Joints**

○—M—	Gate valve, ball valve, butterfly valve	QTY 13 kg/cm <sup>2</sup> , Q13 5 kg/cm <sup>2</sup>	○—□—	Expansion joint		○—	Safety valve
○—	Gate valve, ball valve	w/box	○—	Flexible joint			
○—N—	Check valve		○—	Flange			
			○—	Pressure reducing valve			

**3. Motors, Fittings, etc.**

⊙	Water meter		☒	Interior fire hydrant cabinet		☒	Gas meter	
•	WSP water		☒	Interior fire hydrant cabinet	Combination type	☒	Drainage	A: Heavy duty type B: Medium duty type C: Light duty type D: Concrete
•	WSP, hot water		☒	Hydrant for special use by fire fighting team		☒	Pressure valve	A: Heavy duty type B: Medium duty type C: Light duty type D: Concrete
☒	Sprinkler	w/box	☒	Hydrant for special use by fire fighting team	w/box	☒	Trap pit	A: Heavy duty type B: Medium duty type C: Light duty type D: Concrete
•	Flush valve	Push-button type	☒	Exterior fire hydrant	Stand type	☒	Grille	A: Heavy duty type B: Medium duty type C: Light duty type D: Concrete
☒	Showp		☒	Exterior fire hydrant	Underground type			
○	Drainage fitting	Sink	☒	Outlet	65 mm in diameter, duplex type			
○	Drainage fitting	Drum type	☒	Outlet	Stand type			
○	Drainage fitting	Floor	☒	Gas Exp	Duplex type, simplex type, flush-mounted type			
○	Drainage fitting	Grating						
○	Drainage fitting	Combination tap						
☒	STANDARD	Above and under floor						
☒	AIR VENT							
☒	Sprinkler head							
☒	Sprinkler head	Multihead type						



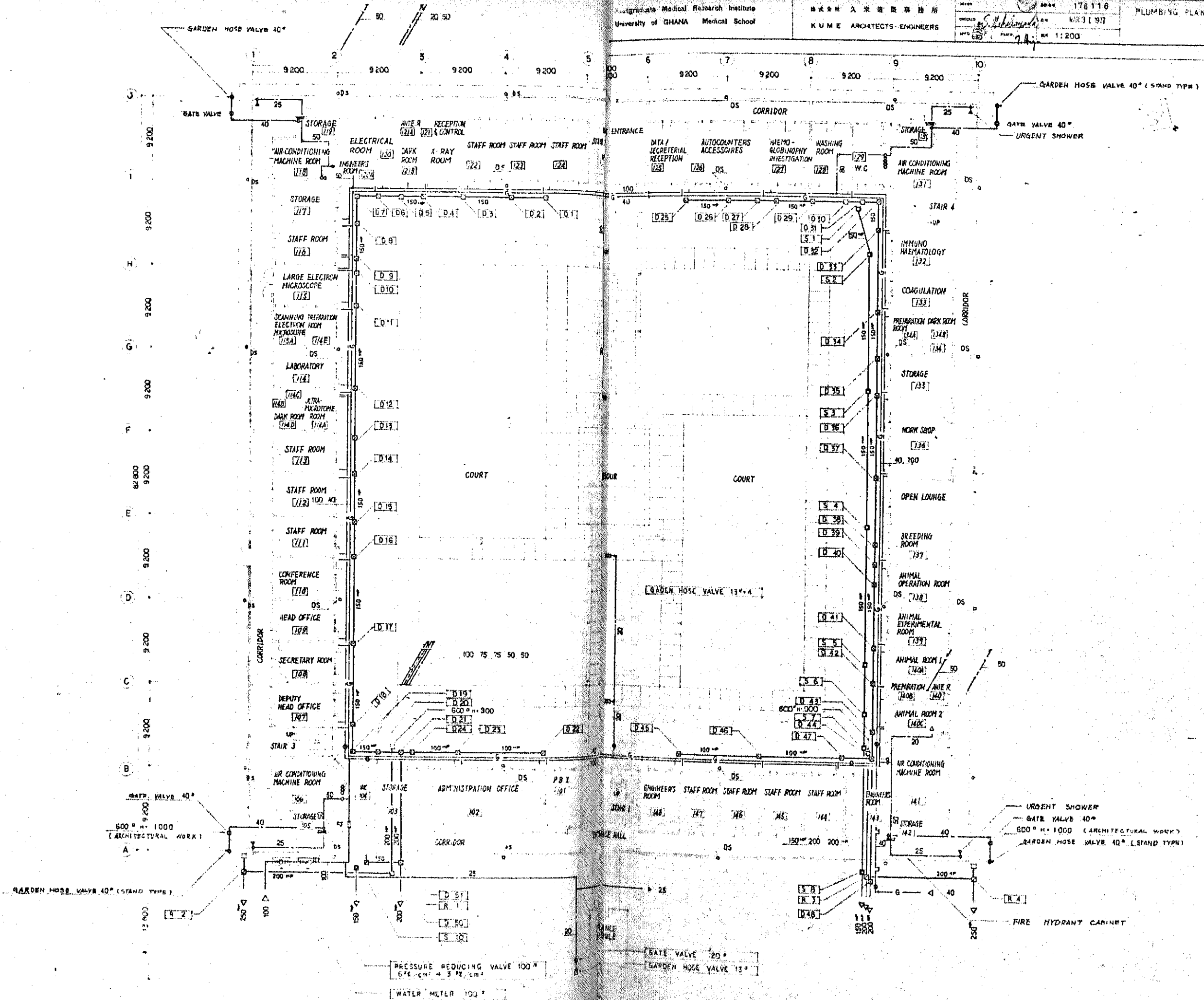
EXTERNAL PLAN 1:500

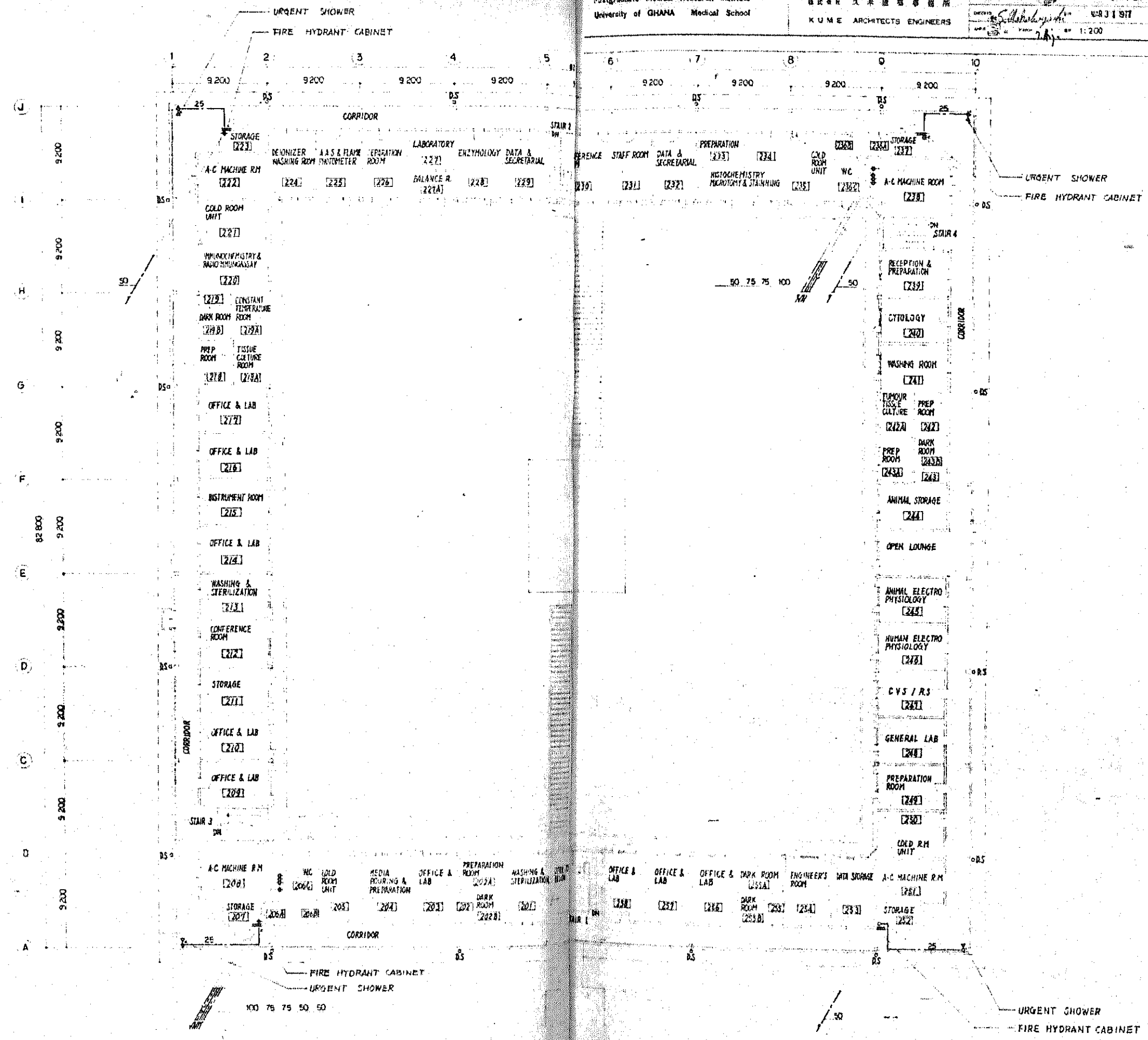
PIT LIST							
NO	D	H	REMARKS	NO	D	H	REMARKS
D 1	450 x 450	400	1/150 WAFERSLOPE	S 1	600 x 600	650	1/150
D 2	"	427		S 2	"	687	
D 3	"	462		S 3	"	787	
D 4	"	489		S 4	"	887	
D 5	"	507		S 5	"	987	
D 6	"	523		S 6	"	1,024	
D 7	"	543		S 7	"	1,051	
D 8	"	567		S 8	"	1,176	
D 9	"	592		S 9	750 x 750	1,276	
D 10	"	602		S 10	600 x 600	700	
D 11	"	626		S 11	"	800	
D 12	"	687					
D 13	600 x 600	720					
D 14	"	748					
D 15	"	781					
D 16	"	804					
D 17	"	865					
D 18	"	926					
D 19	"	946		R 1	900 x 900	1,040	
D 20	"	967		R 2	"	1,200	
D 21	"	984		R 3	"	1,040	
D 22	450 x 450	500		R 4	"	1,160	
D 23	"	561		R 5	"	1,260	
D 24	"	595		R 6	"	1,350	
D 25	"	400		R 7	"	1,300	
D 26	"	432		R 8	"	1,385	
D 27	"	455					
D 28	"	468					
D 29	"	496					
D 30	"	521					
D 31	"	533					
D 32	"	547					
D 33	"	573					
D 34	"	628					
D 35	"	659					
D 36	"	698					
D 37	600 x 600	759					
D 38	"	806					
D 39	"	821					
D 40	"	837					
D 41	"	879					
D 42	"	905					
D 43	"	945					
D 44	"	961					
D 45	450 x 450	500					
D 46	"	560					
D 47	"	620					
D 48	900 x 900	1,051					
D 49	"	1,151					
D 50	450 x 450	600					
D 51	900 x 900	1,097	D 21 in				
D 52	"	1,197					



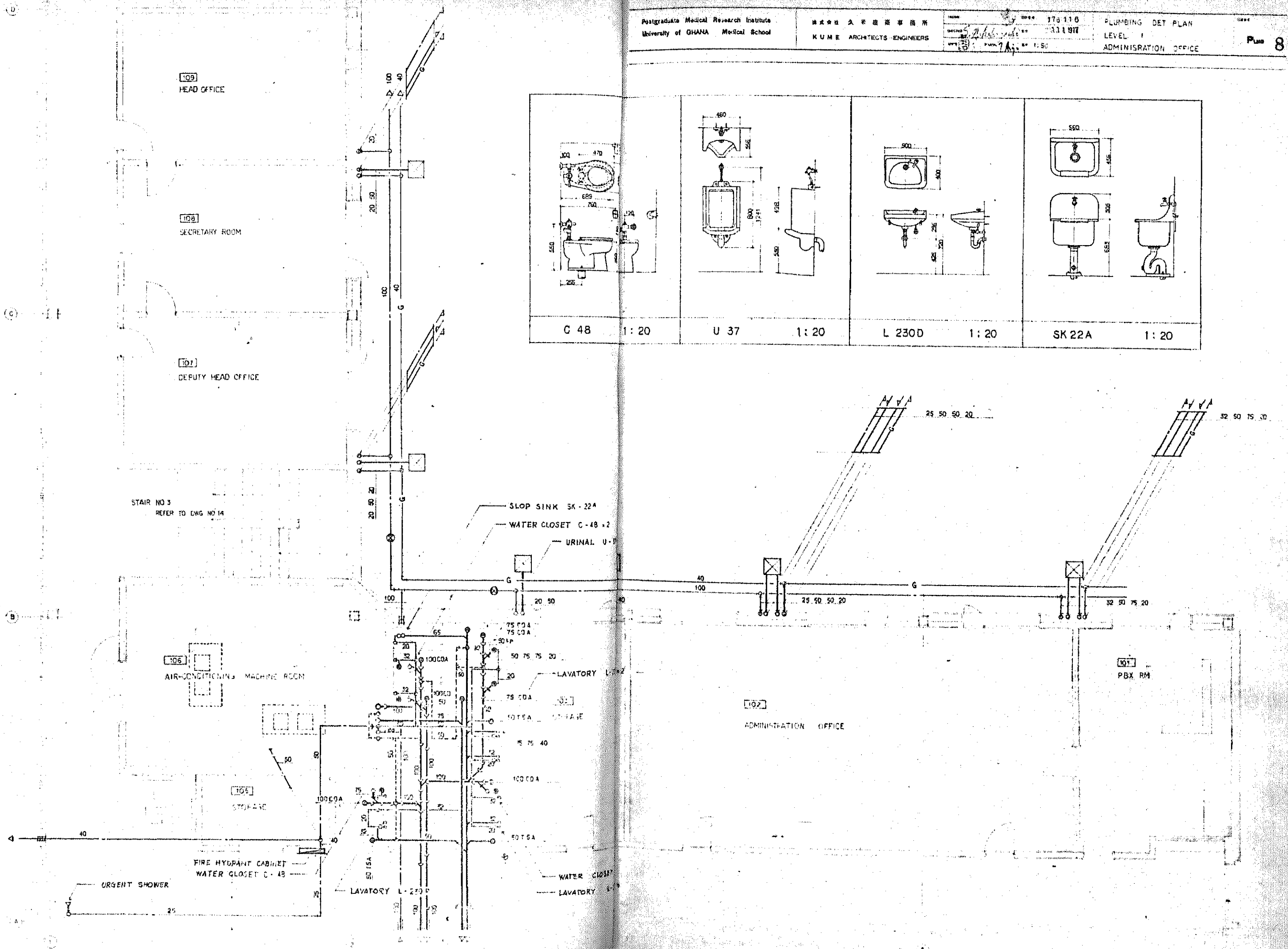




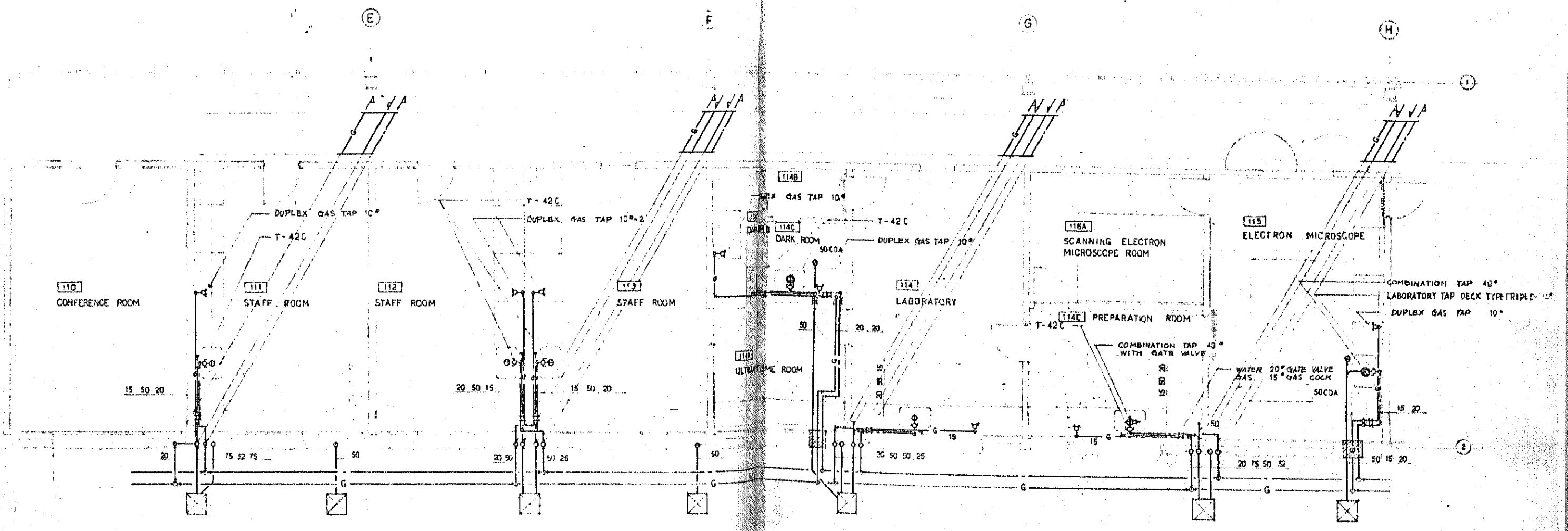


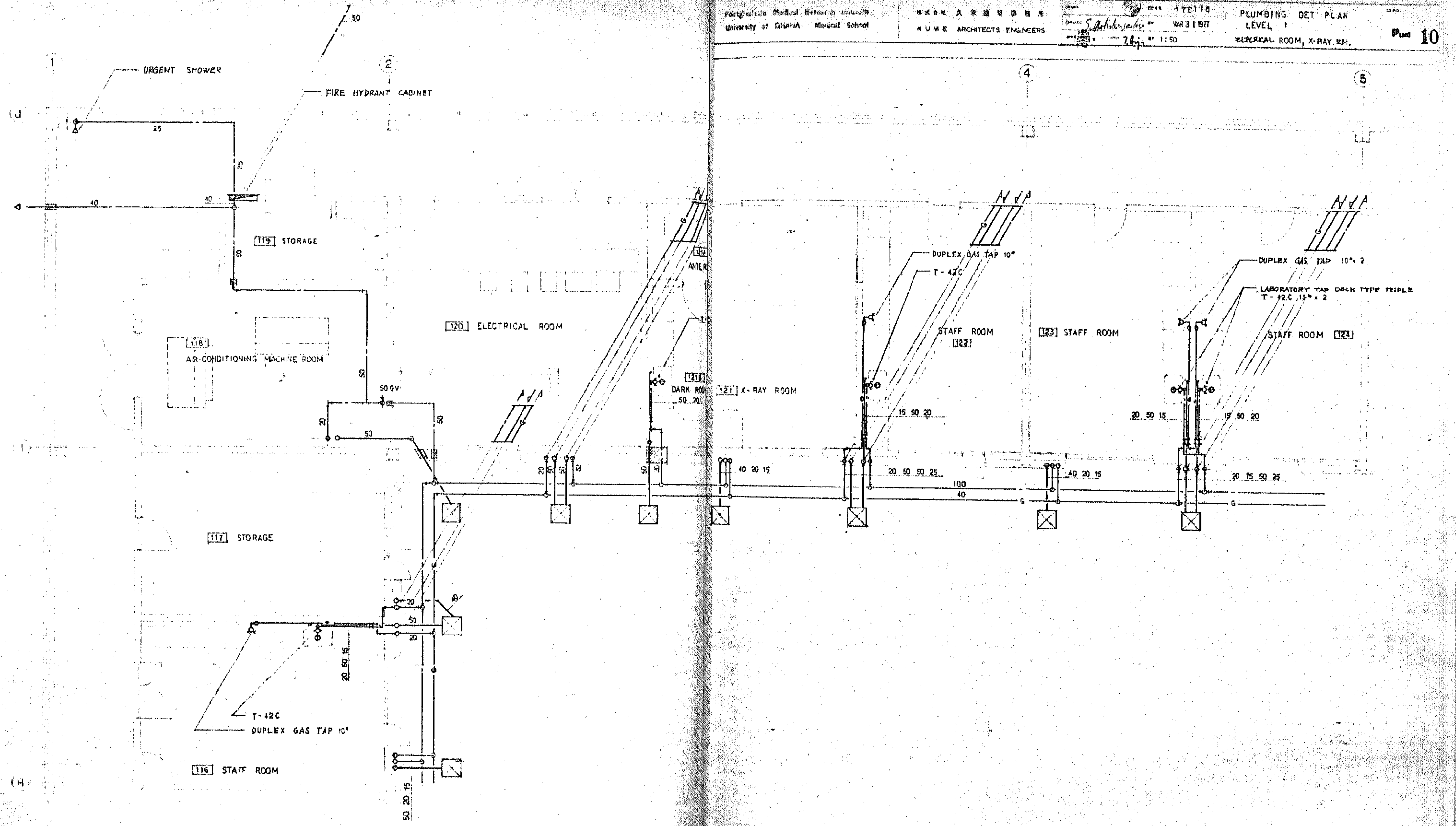


C 48	U 37	L 230D	SK 22A
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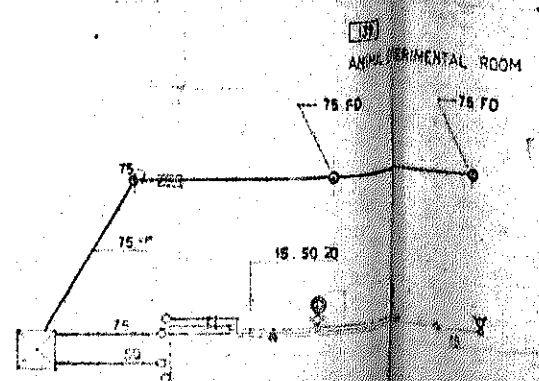
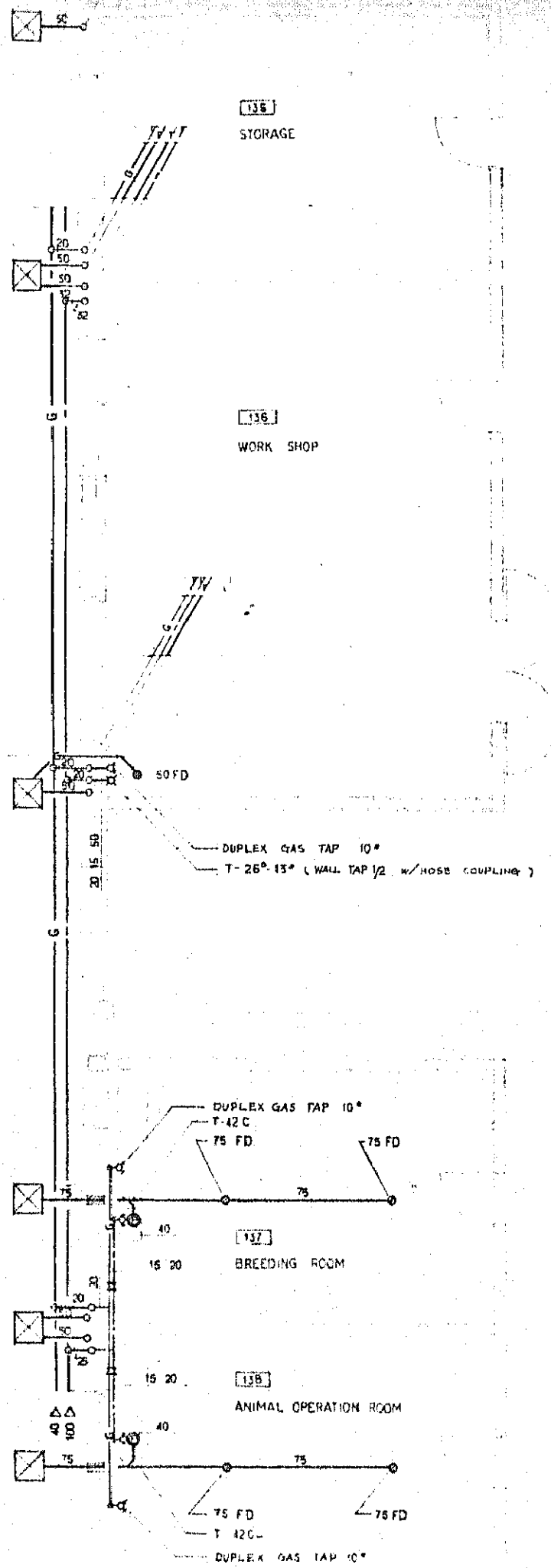








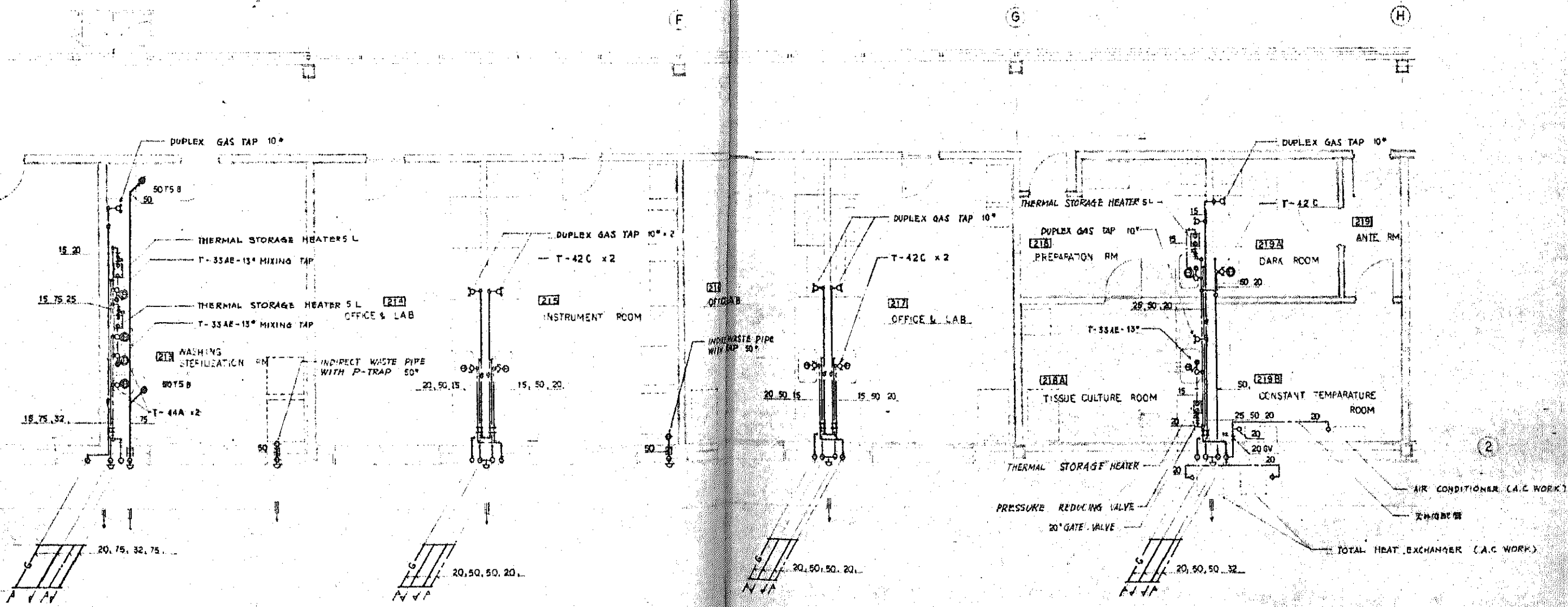




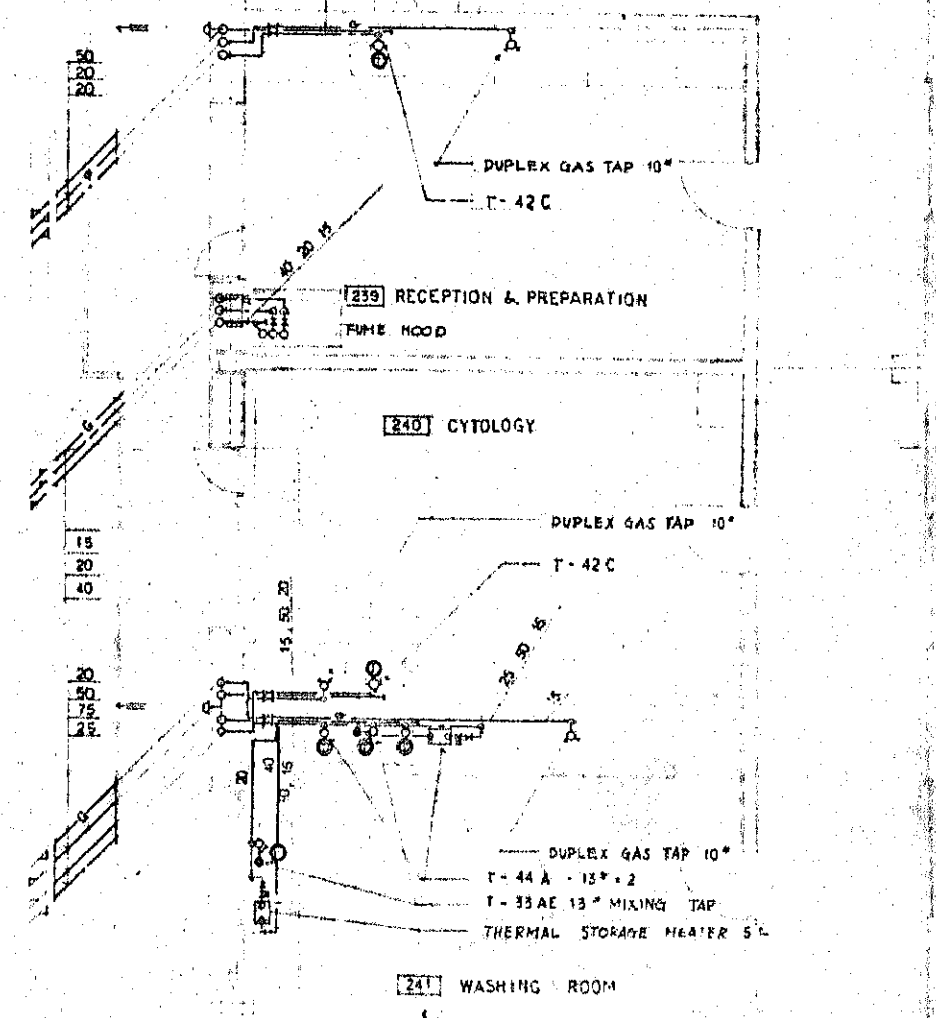
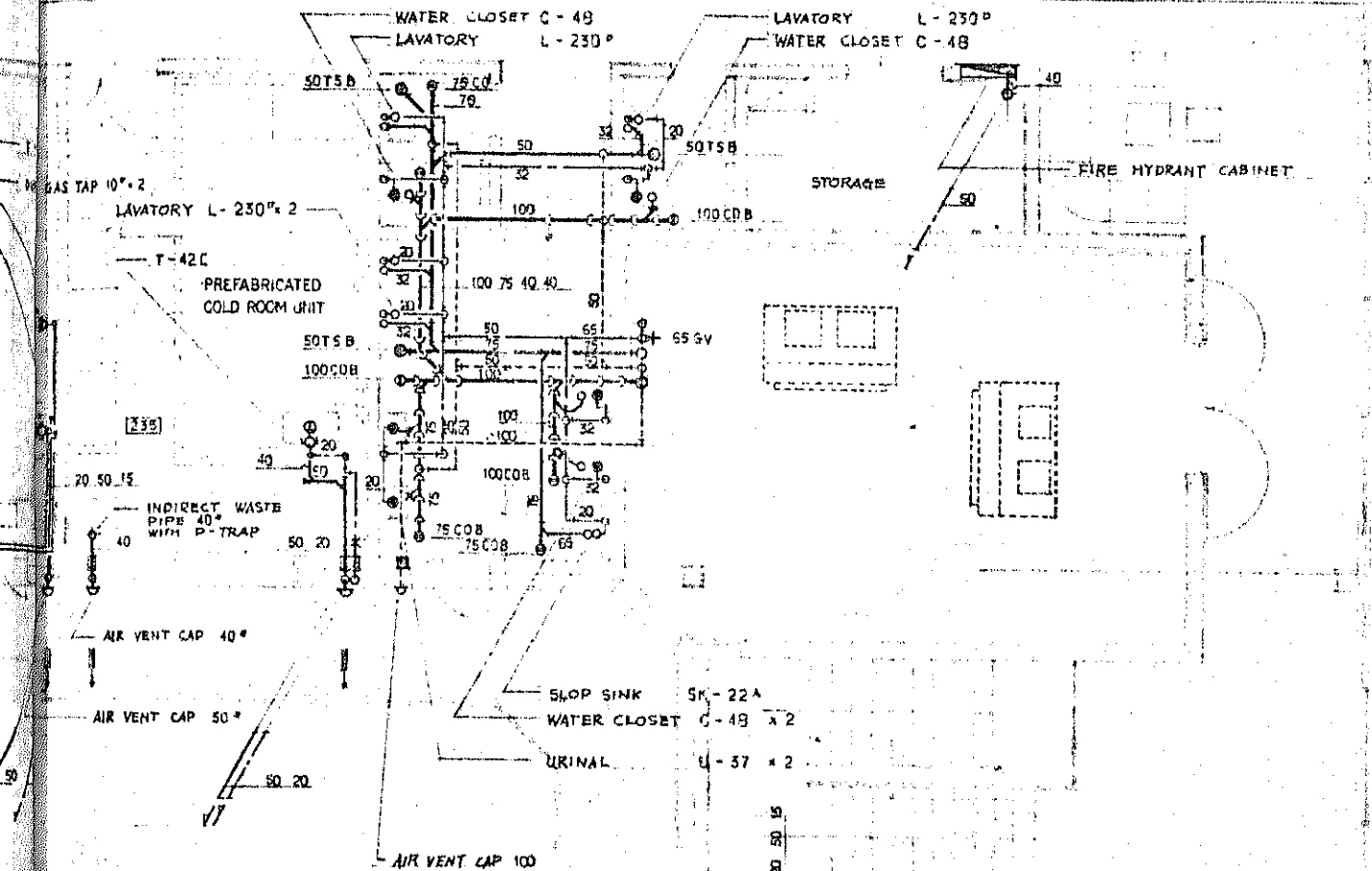
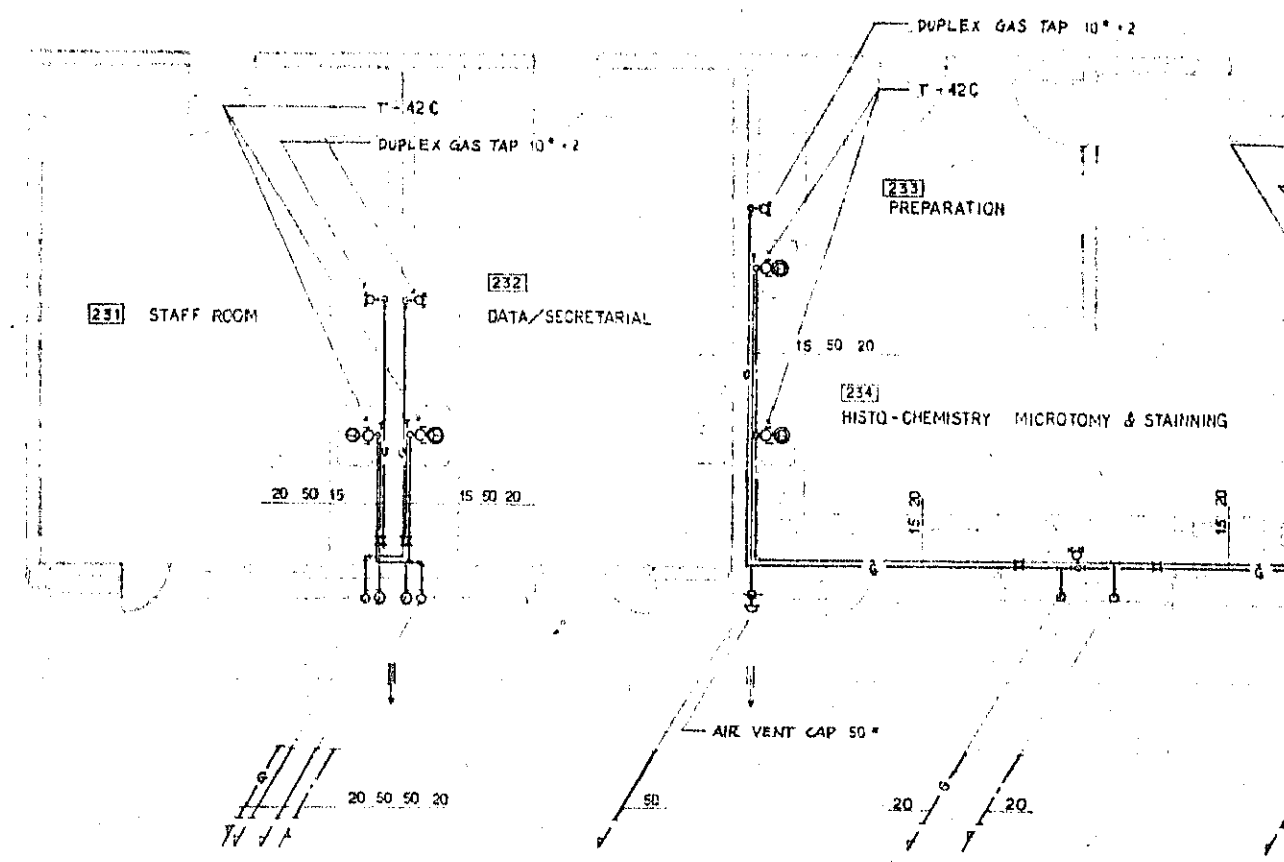


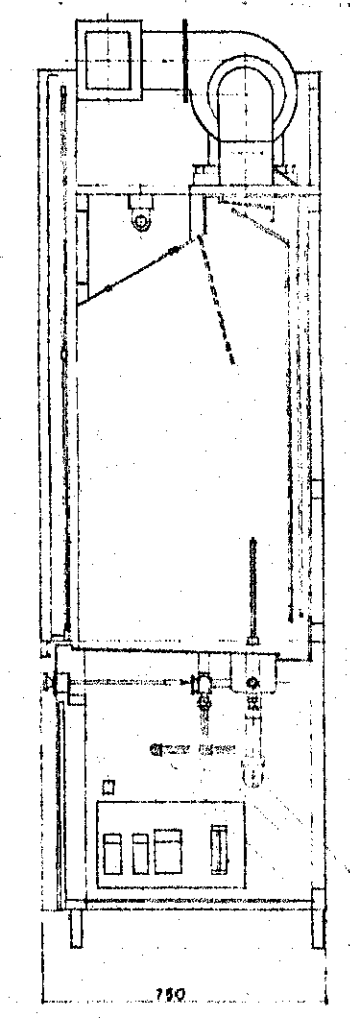
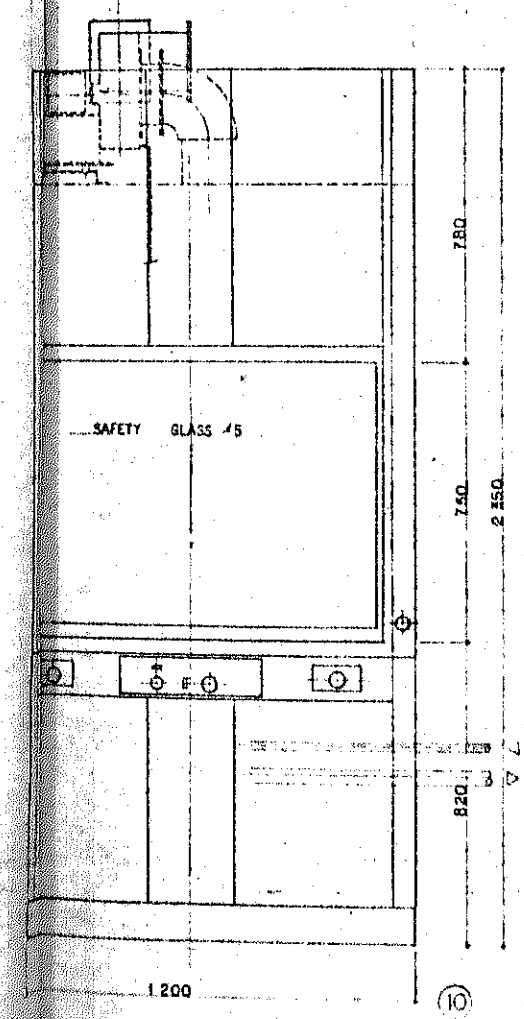
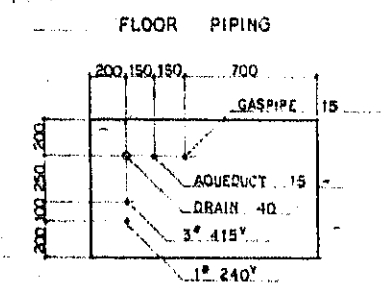
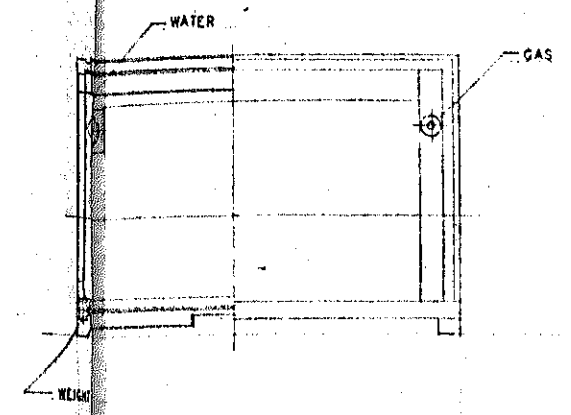
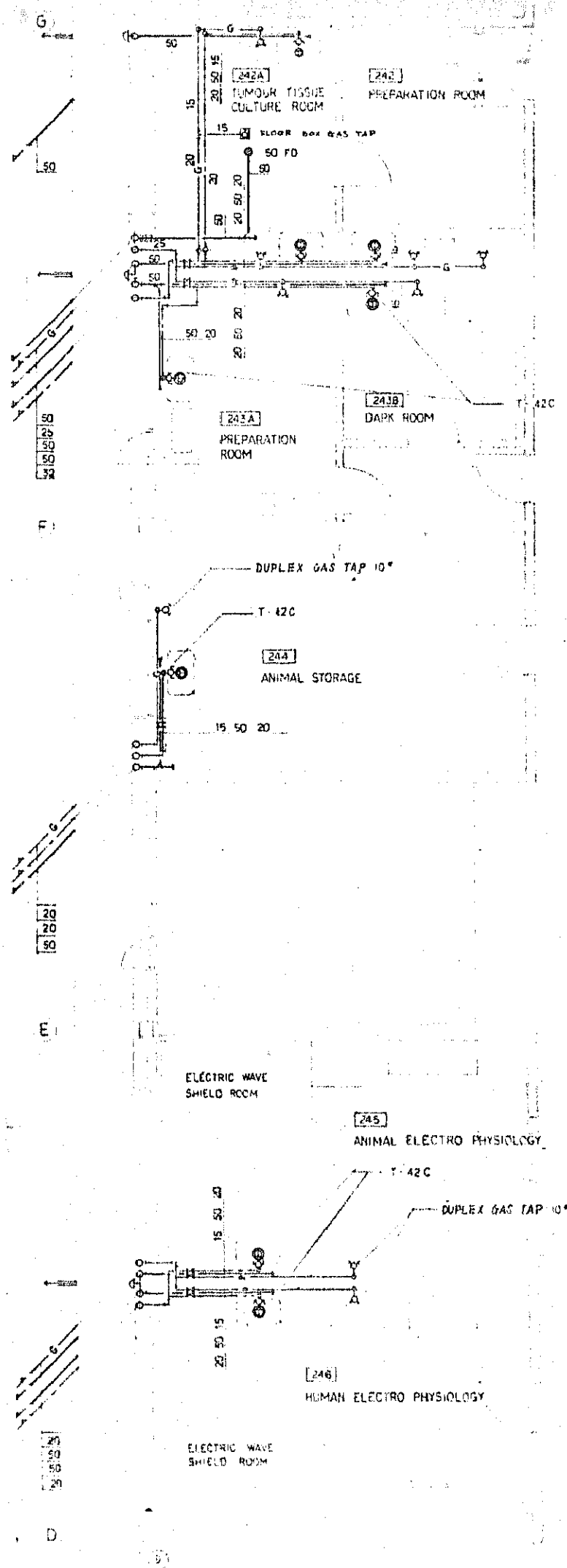






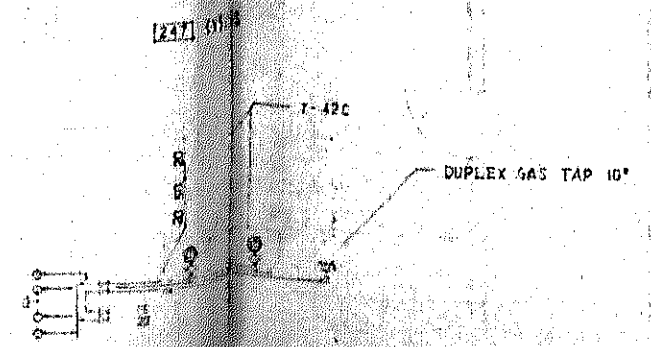


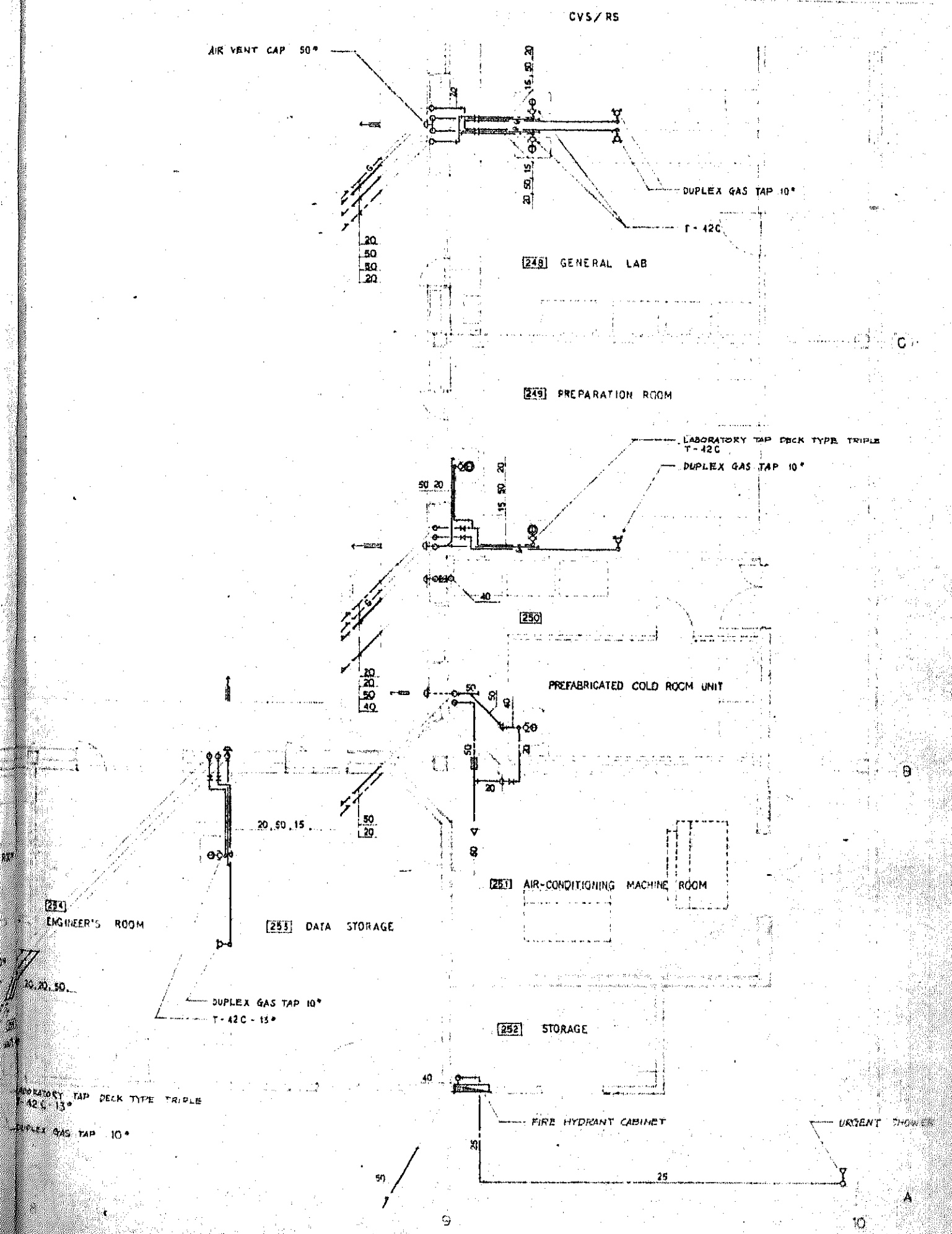
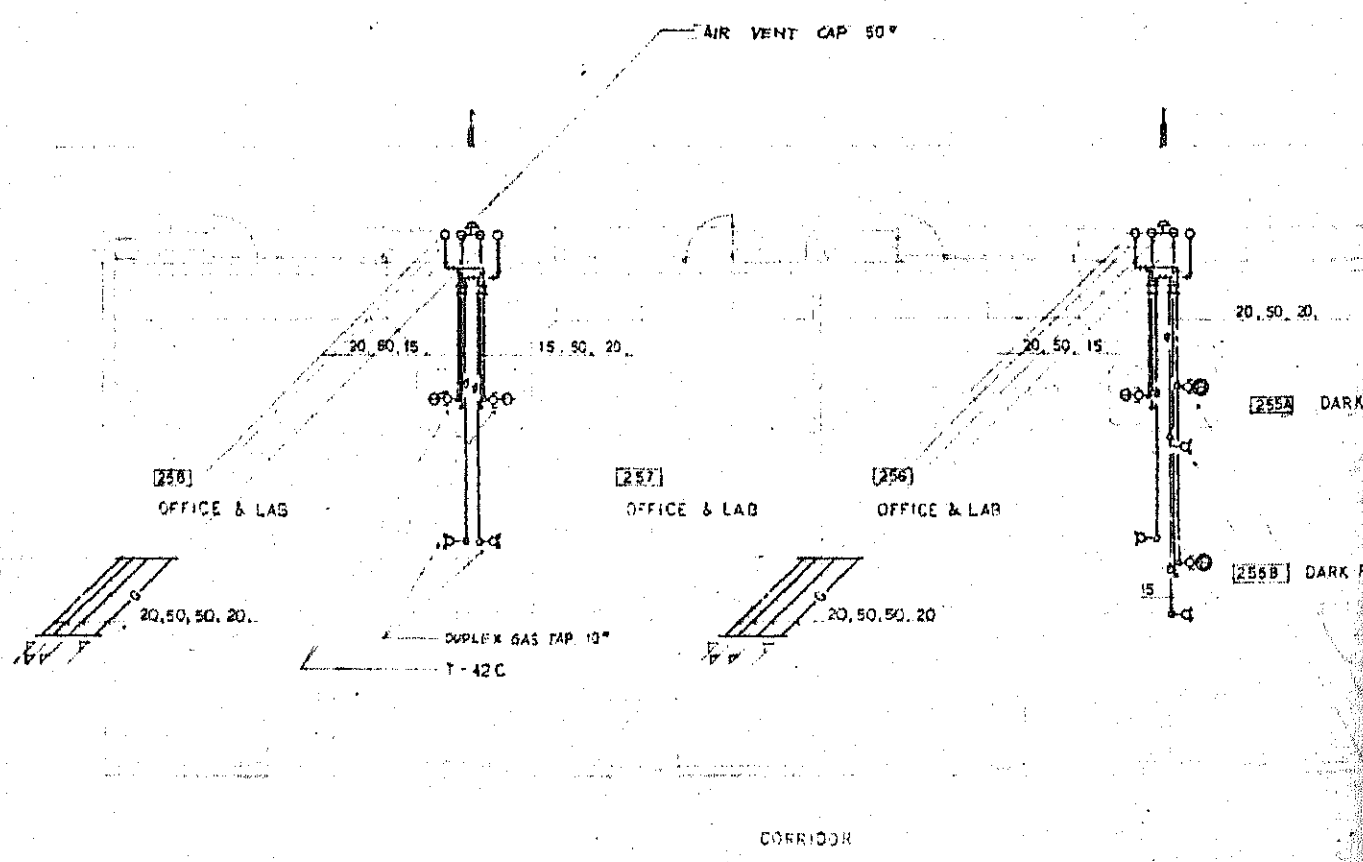




DRAIN 40"  
 WATER 20"  
 GAS 15"

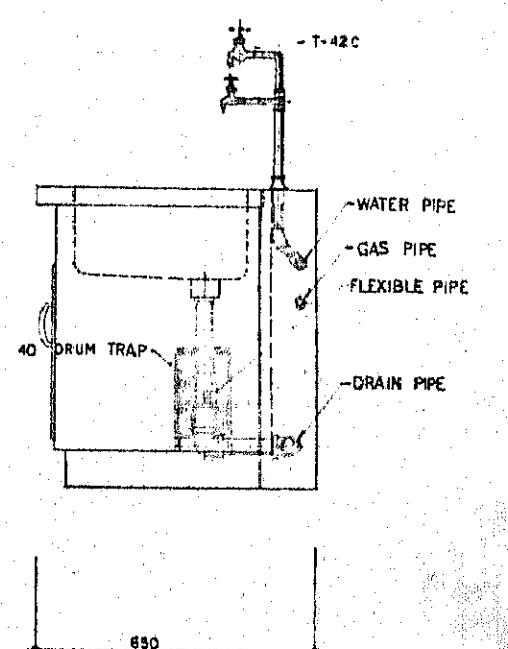
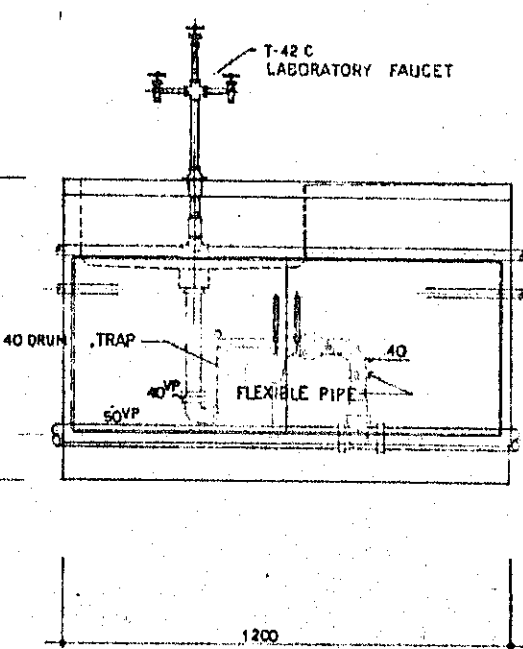
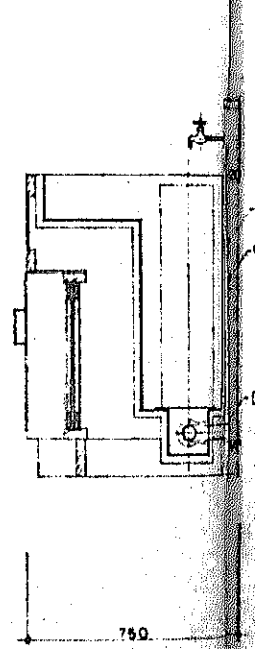
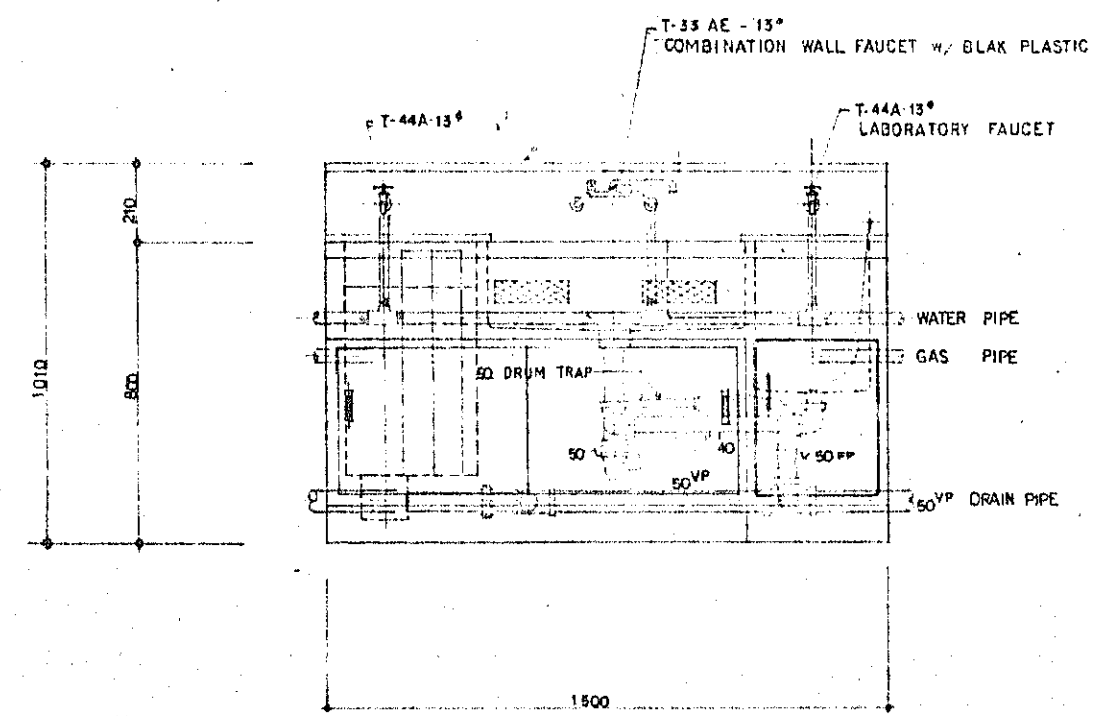
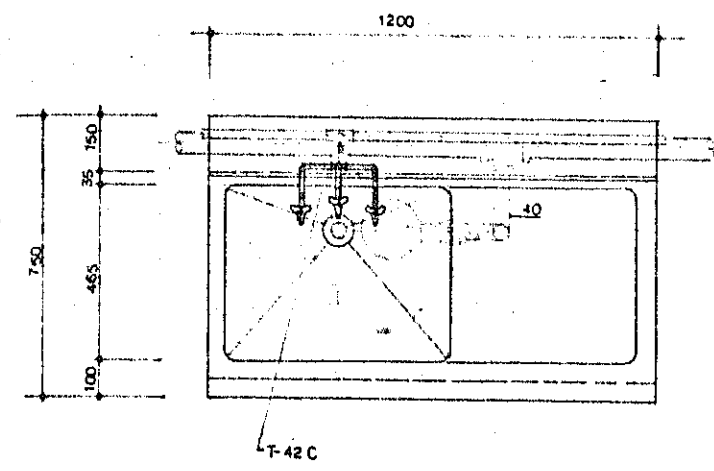
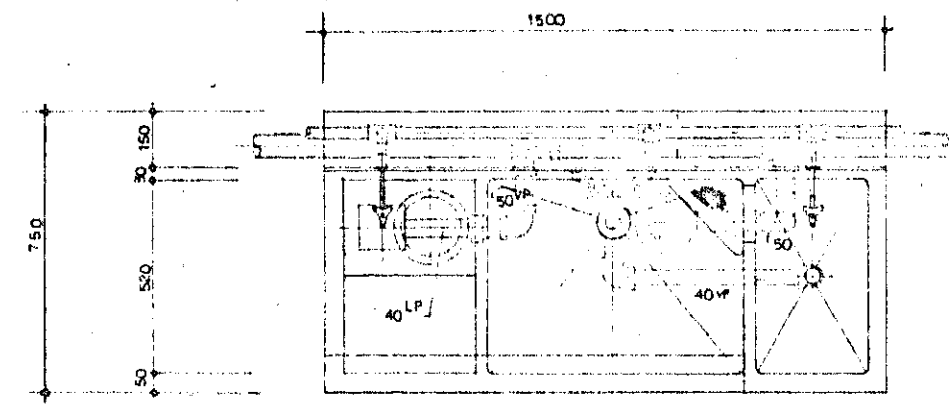
FUME HOOD 1:10





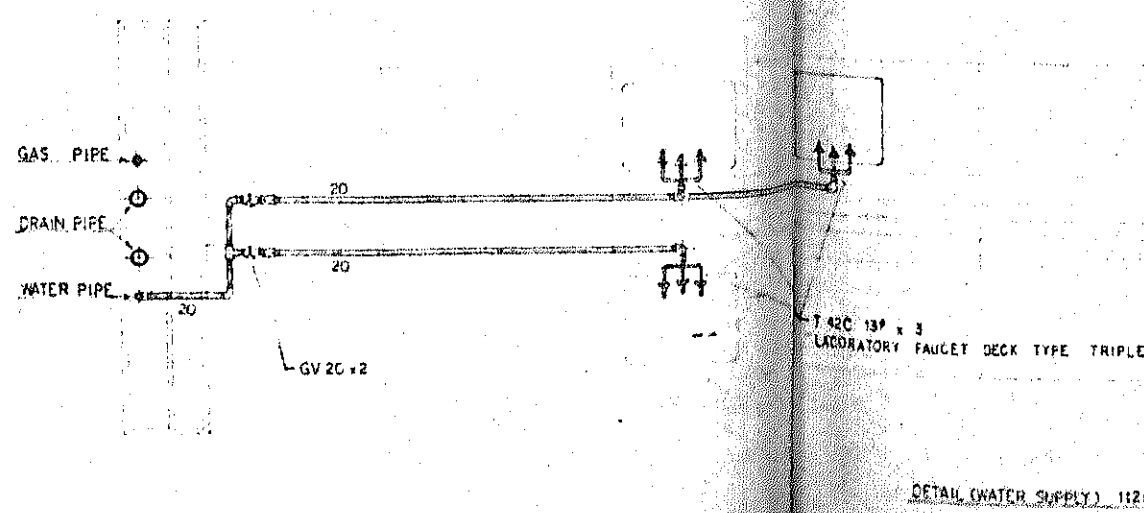
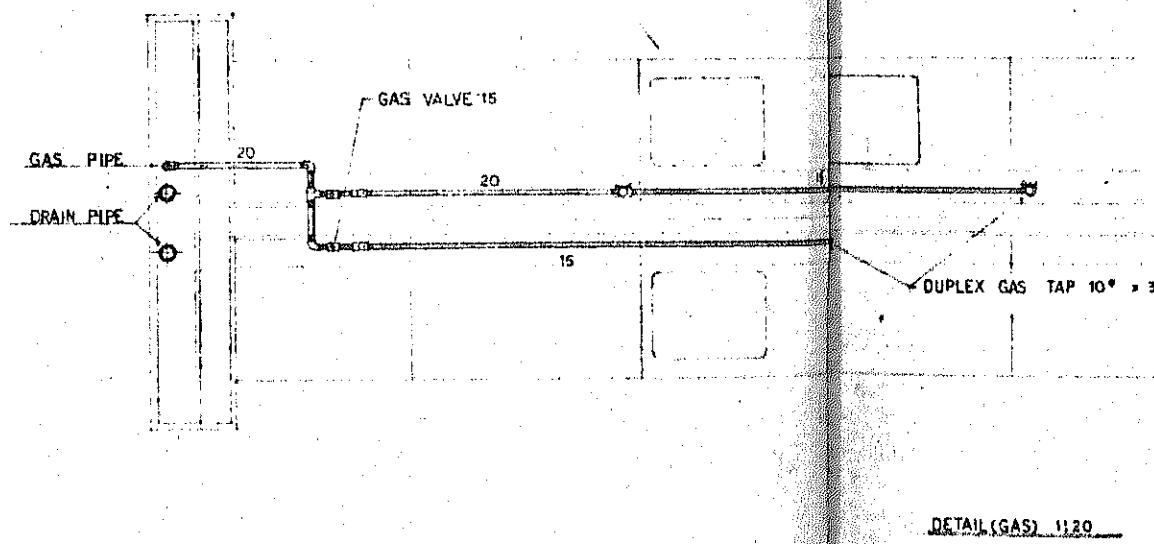
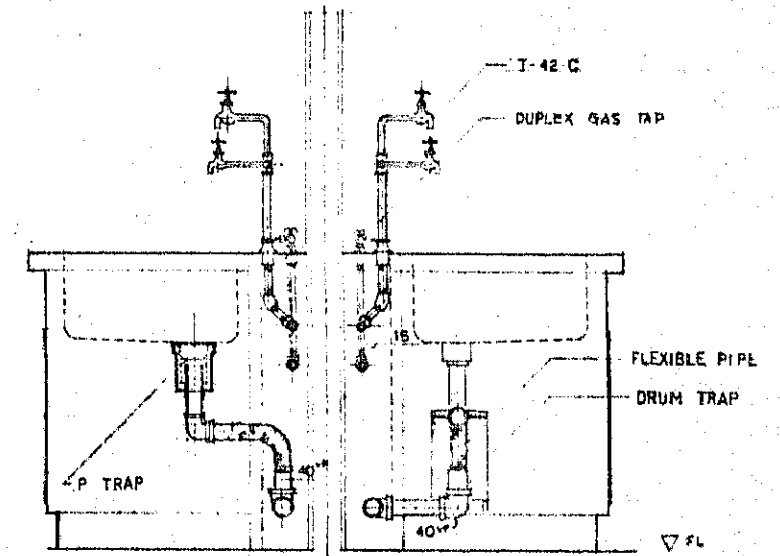
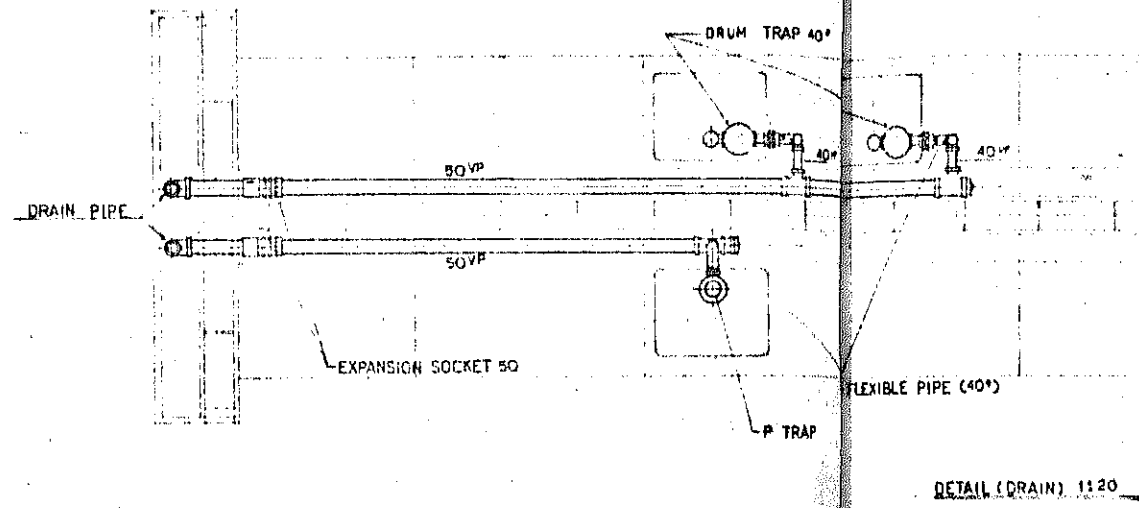


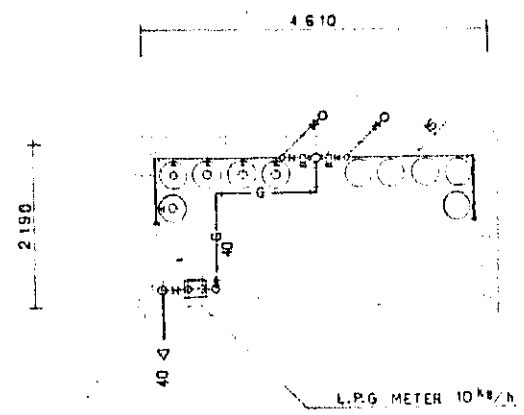




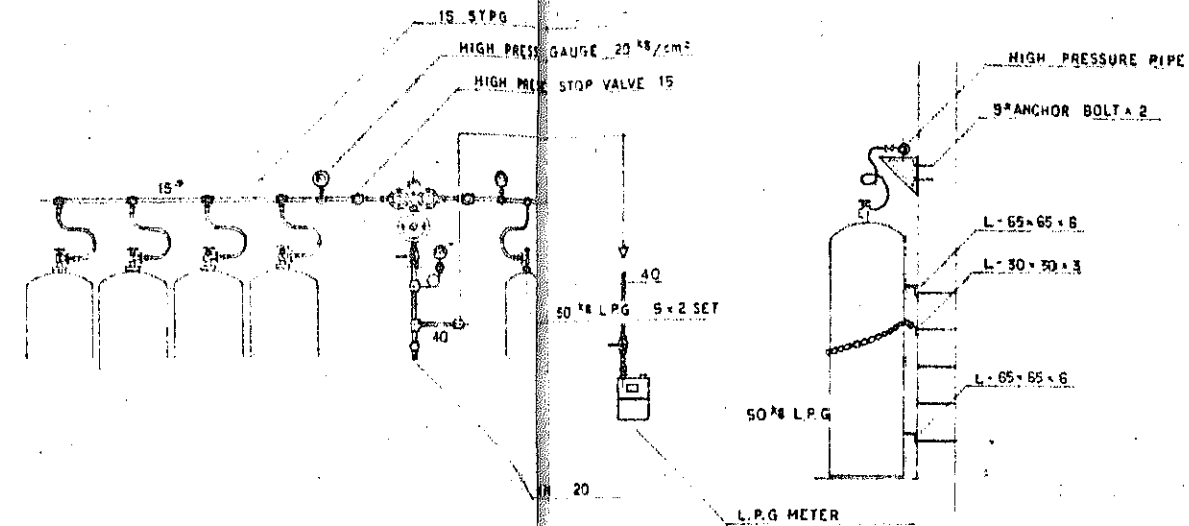
SPECIAL SINK DETAIL S 1110

SINK DETAIL S 1110

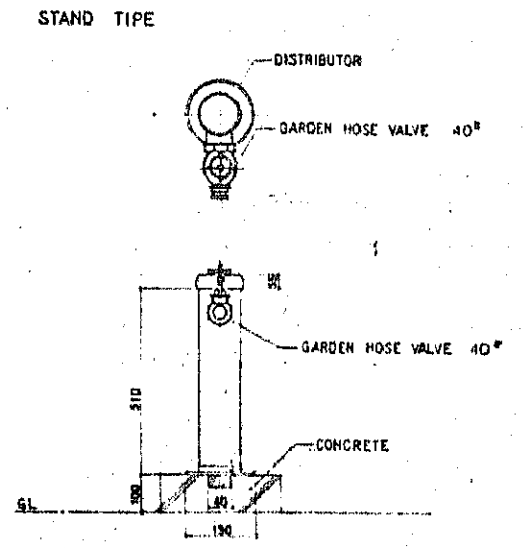




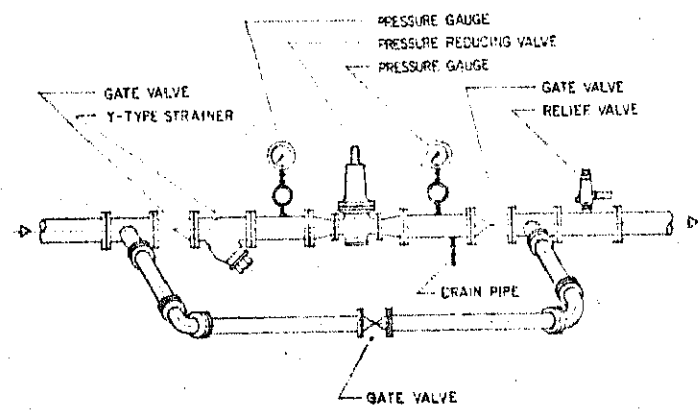
L.P.G STORAGE



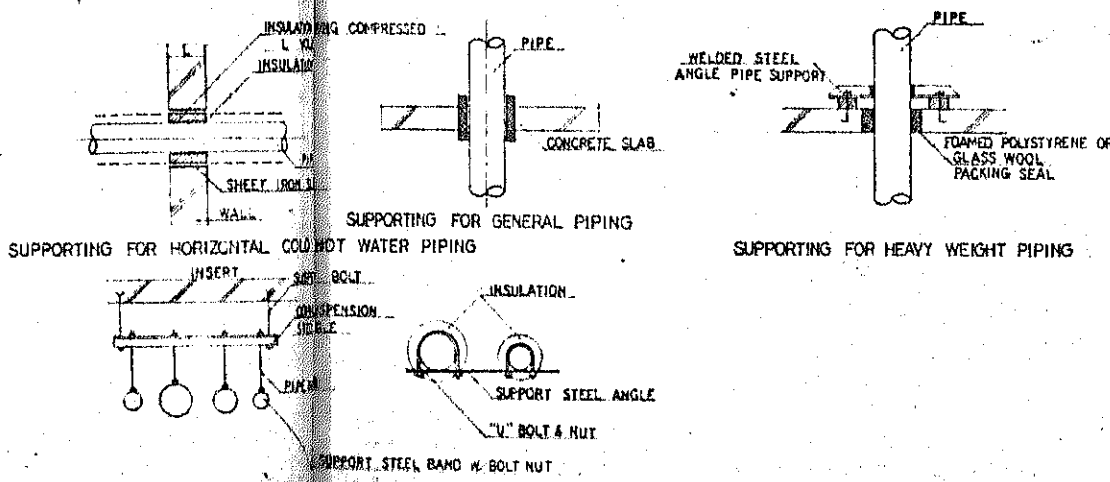
SECTION



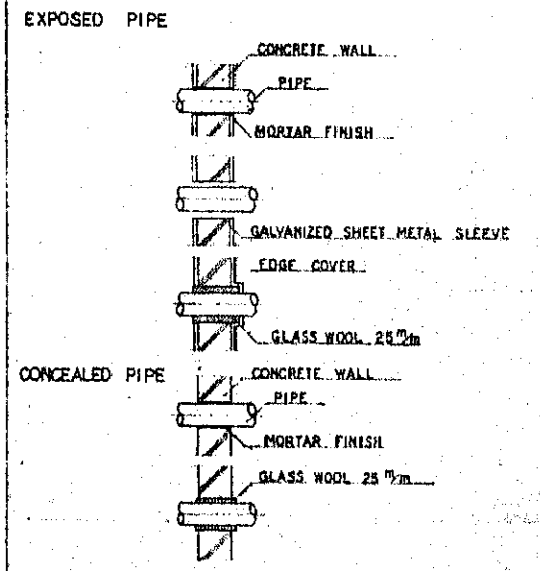
GARDEN HOSE VALVE



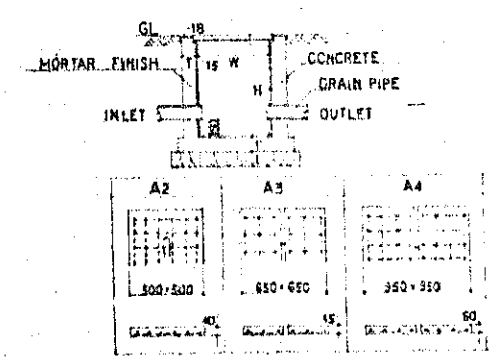
DECOMPRESSION DEVICE GRAPHIC



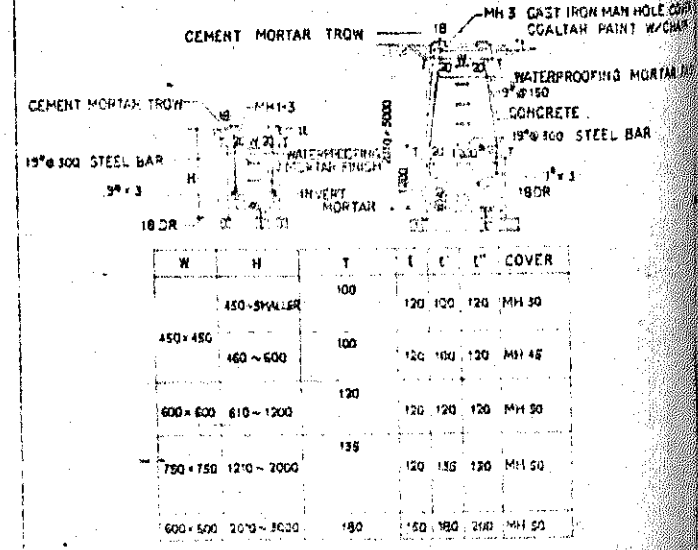
SUPPORT AND HANGER



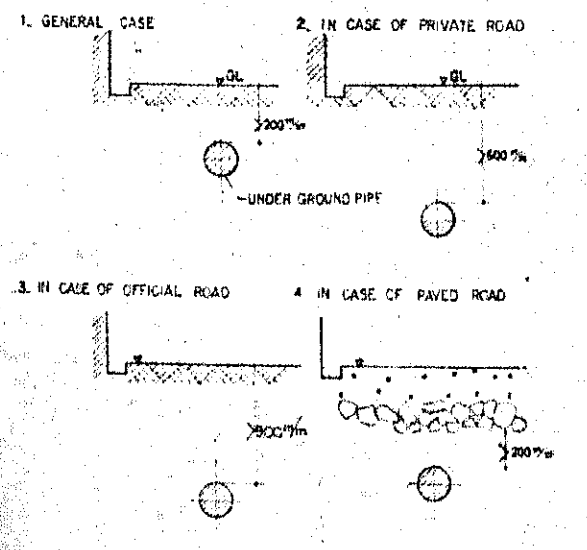
THROUGH PIPING



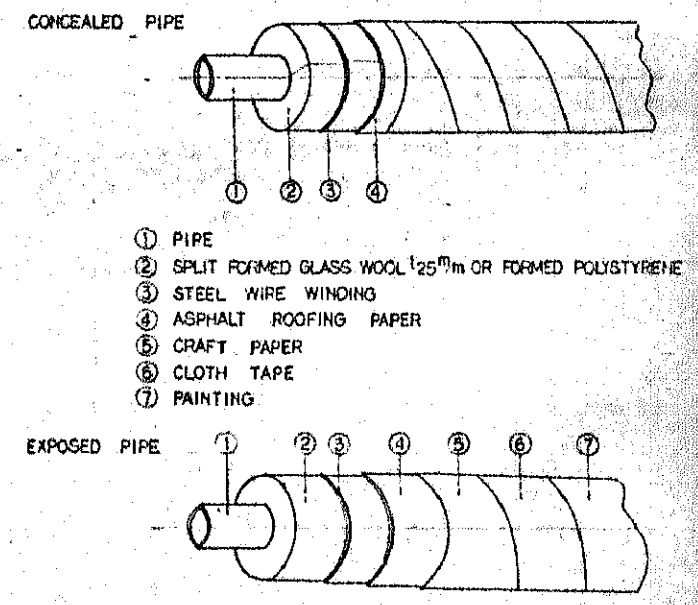
DRAINAGE BASIN



CATCH BASIN

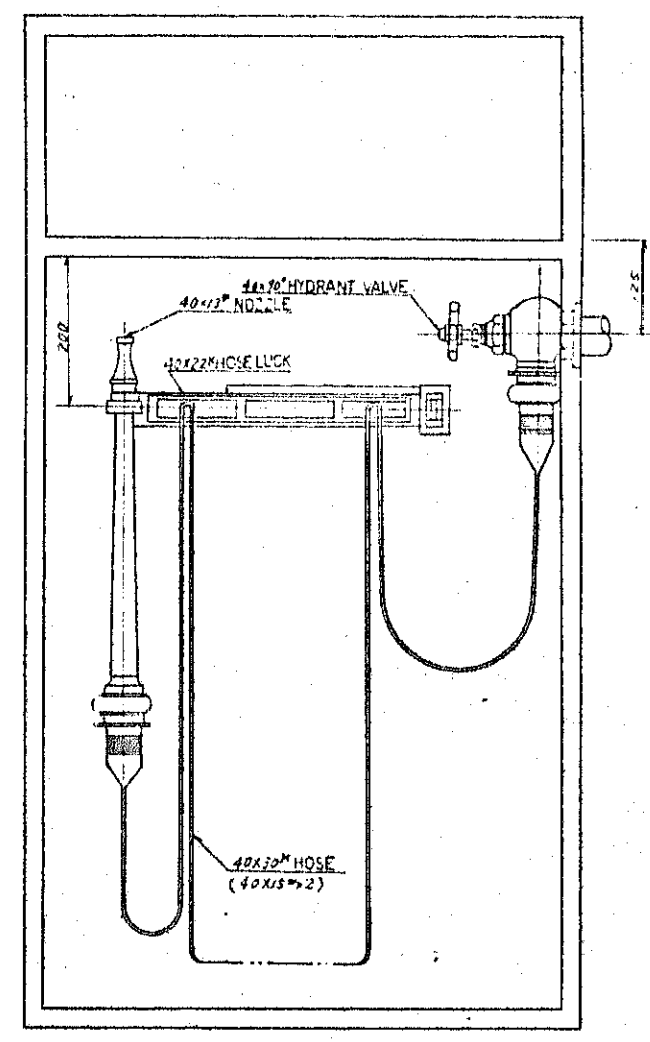
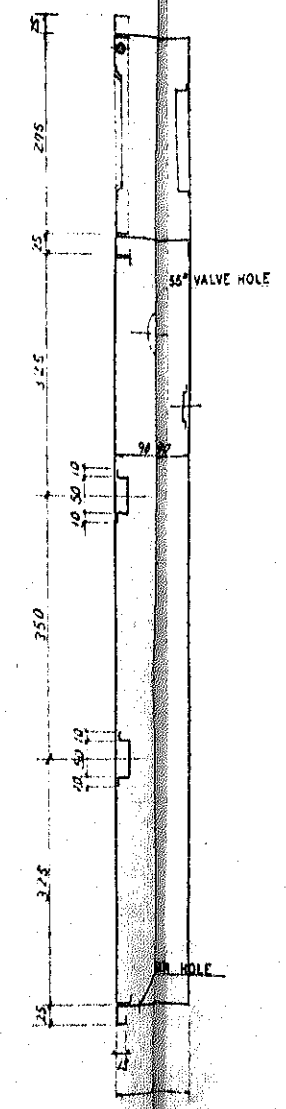
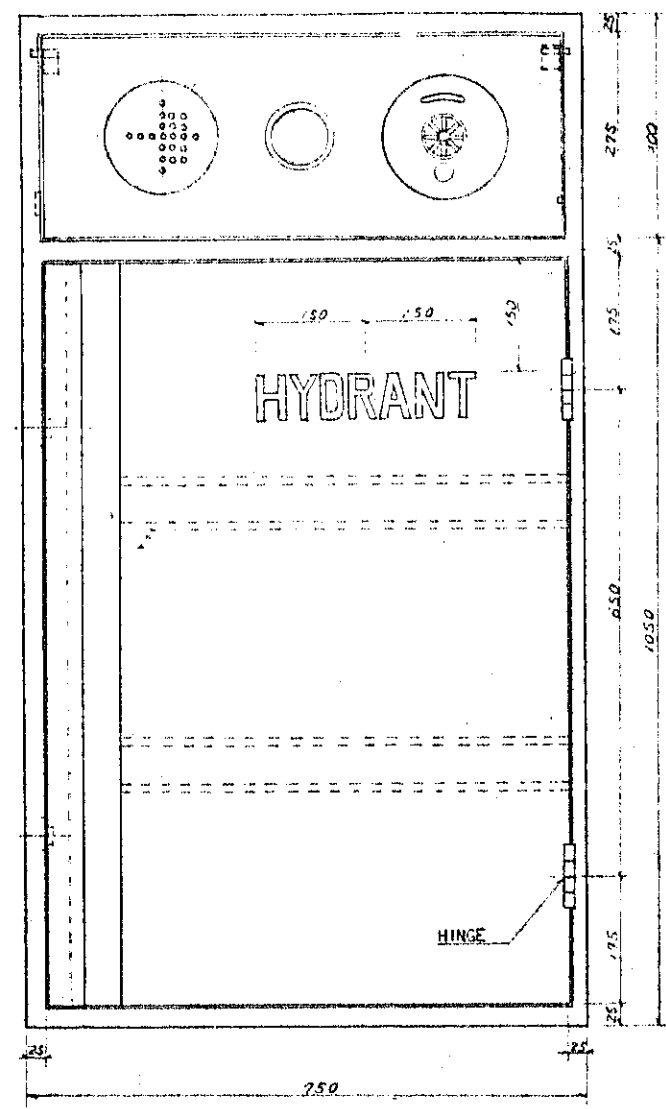


DEPTH FOR UNDER GROUND PIPING



INSULATION OF PIPE

ALARM BELL  
RED LAMP  
PUSH BUTTON SWITCH



HYDRANT CABINET DETAIL 1:5

