REPUBLIC OF LEBANON COUNCIL

FOR DEVELOPMENT & RECONSTRUCTION

AKKAR SAHLEH GOVERNMENTAL HOSPITAL

MECHANICAL DRAWINGS
DETAILED FINAL DESIGN - PHASE 5

ETEC

JULY 2026

RESTAURANT

DWGS. N°	TITLE		SCALE
ASGH-M-01	LEGEND & LIST OF DRAWINGS	MECHANICAL	N.T.S.
ASGH-M-02	TYPICAL DETAILS 1/7	MECHANICAL	N.T.S.
ASGH-M-03	TYPICAL DETAILS 2/7	MECHANICAL	N.T.S.
ASGH-M-04	TYPICAL DETAILS 3/7	MECHANICAL	N.T.S.
ASGH-M-05	TYPICAL DETAILS 4/7	MECHANICAL	N.T.S.
ASGH-M-06	TYPICAL DETAILS 5/7	MECHANICAL	N.T.S.
ASGH-M-07	TYPICAL DETAILS 6/7	MECHANICAL	N.T.S.
ASGH-M-08	TYPICAL DETAILS 7/7	MECHANICAL	N.T.S.
ASGH-M-09	GENERAL NOTES 1/2	MECHANICAL	N.T.S.
ASGH-M-10	GENERAL NOTES 2/2	MECHANICAL	N.T.S.
	DRAINAGE		
ASGH-M-11	BASEMENT FLOOR PLAN	DRAINAGE	1/100
ASGH-M-12	BASEMENT FLOOR PLAN (HIGH LEVEL)	DRAINAGE	1/100
ASGH-M-13	GROUND FLOOR PLAN	DRAINAGE	1/100
ASGH-M-14	GROUND FLOOR PLAN (HIGH LEVEL)	DRAINAGE	1/100
ASGH-M-15	FIRST FLOOR PLAN	DRAINAGE	1/100
ASGH-M-16	ROOF PLAN	DRAINAGE	1/100
ASGH-M-17	UPPER ROOF PLAN	DRAINAGE	1/100
	WATER SUPPLY		
ASGH-M-18	BASEMENT FLOOR PLAN	WATER SUPPLY	1/100
ASGH-M-19	GROUND FLOOR PLAN	WATER SUPPLY	1/100
ASGH-M-20	FIRST FLOOR PLAN	WATER SUPPLY	1/100
ASGH-M-21	ROOF PLAN	WATER SUPPLY	1/100
ASGH-M-22	SCHEMATIC RISER	WATER SUPPLY	N.T.S.
	HEATING		
ASGH-M-23	BASEMENT FLOOR PLAN	HEATING	1/100
ASGH-M-24	GROUND FLOOR PLAN	HEATING	1/100
ASGH-M-25	FIRST FLOOR PLAN	HEATING	1/100
ASGH-M-26	ROOF PLAN	HEATING	1/100
ASGH-M-27	SCHEMATIC RISER	HEATING	N.T.S.
	HVAC DUCTING		
ASGH-M-28	BASEMENT FLOOR PLAN	HVAC DUCTING	1/100
ASGH-M-29	GROUND FLOOR PLAN	HVAC DUCTING	1/100
ASGH-M-30	FIRST FLOOR PLAN	HVAC DUCTING	1/100
ASGH-M-31	ROOF PLAN	HVAC DUCTING	1/100
ASGH-M-32	UPPER ROOF PLAN	HVAC DUCTING	1/100
ASGH-M-33	SCHEMATIC RISER 1/2	HVAC DUCTING	N.T.S.
ASGH-M-34	SCHEMATIC RISER 2/2	HVAC DUCTING	N.T.S.
	HVAC PIPING		
ASGH-M-35	BASEMENT FLOOR PLAN	HVAC PIPING	1/100
ASGH-M-36	GROUND FLOOR PLAN	HVAC PIPING	1/100
ASGH-M-37	FIRST FLOOR PLAN	HVAC PIPING	1/100
ASGH-M-38	ROOF PLAN	HVAC PIPING	1/100
ASGH-M-39	SCHEMATIC RISER	HVAC PIPING	N.T.S.
	MEDICAL GASES		
ASGH-M-40	BASEMENT FLOOR PLAN	MEDICAL GASES	1/100
ASGH-M-41	GROUND FLOOR PLAN	MEDICAL GASES	1/100
ASGH-M-42	FIRST FLOOR PLAN	MEDICAL GASES	1/100
ASGH-M-43	SCHEMATIC RISER	MEDICAL GASES	N.T.S.
	FIRE FIGHTING		
ASGH-M-44	BASEMENT FLOOR PLAN	FIRE FIGHTING	1/100
ASGH-M-45	GROUND FLOOR PLAN	FIRE FIGHTING	1/100
ASGH-M-46	FIRST FLOOR PLAN	FIRE FIGHTING	1/100
ASGH-M-47	ROOF FLOOR PLAN	FIRE FIGHTING	1/100
ASGH-M-48	SCHEMATIC RISER	FIRE FIGHTING	N.T.S.
ASGH-M-49	SCHEDULE OF EQUIPMENT 1/2	MECHANICAL	N.T.S.
ASGH-M-50	SCHEDULE OF EQUIPMENT 2/2	MECHANICAL	N.T.S.
	SITE PLAN		
ASGH-M-51	SITE PLAN PLAN	DRAINAGE	1/250
ASGH-M-52	SITE PLAN PLAN	WATER SUPPLY	1/250

LEGEND

SYMBOL	CODE	DESIGNATION
		GATE VALVE
		GLOBE VALVE
		CHECK VALVE
		PRESSURE REGULATING VALVE
		STRAINER
		PUMP
		WATER METER
		AUTOMATIC AIR VENT
	C.W.S	COLD WATER SUPPLY PIPE
	H.W.S	HOT WATER SUPPLY PIPE
	H.W.R	HOT WATER RETURN PIPE
	I.S	IRRIGATION SUPPLY PIPE
	B.W	BLACK WATER PIPE
	G.W	GREY WATER PIPE
	V	VENT PIPE
	R.W	RAIN WATER PIPE
	P.W	PRESSURE WATER PIPE
	M.H	CONCRETE MANHOLE
		BASEMENT DRAIN
	F.D	FLOOR DRAIN
	F.B.D.	FLOWER BED DRAIN
	R.D	ROOF DRAIN
	V.C	VENT CAP
	F.C.O	FLOOR CLEAN OUT
	W.H.A	WATER HAMMER ARRESTOR
	C.O	IN LINE CLEAN OUT
		MOTORIZED VALVE
	PRV	PRESSURE REDUCER VALVE
F.H.	FH	FIRE FIGHTING STANDPIPE NETWORK PIPE
F	F	SPRINKLER NETWORK PIPE
CA	NOVEC 1230	NOVEC 1230 PIPE
		BUBBLERS
		EMITTERS
	SP-1	SPRINKLER TYPE 1 – STANDARD COVERAGE UPRIGHT SPRINKLER
	SP-2	NOVEC 1230 DISCHARGE NOZZLE
ZCV	FCV	ZONE CONTROL VALVE
	FE-1	FIRE EXTINGUISHER TYPE-1, PORTABLE, MULTI-PURPOSE, 6 kg
	FE-2	FIRE EXTINGUISHER TYPE-2, PORTABLE, CO2, 6 kg
	FE-3	FIRE EXTINGUISHER TYPE-3, CEILING MOUNTED, CO2, 9 kg
	FHC-1	FIRE HOSE CABINET -TYPE 1 SINGLE COMPARTMENT INCLUDING: -1 NO. ø25x30 METER LONG MANUAL HOSE REEL W/NOZZLE -1 NO. ø40 PRESSURE REGULATING ANGLE VALVE
	F/A	FROM ABOVE
	F/B	FROM BELOW
	T/A	TO ABOVE
	T/B	TO BELOW
	U/T	UNDER TILES
	U/C	UNDER CEILING
	U/S	UNDER SLAB
	U/F	UNDER FLOOR
	I/R	IN RAFT
	R.W.P	RAIN WATER PIPE
	SWP	SOIL & WASTE PIPE
	CWS	COLD WATER SUPPLY
	FAD	FRESH AIR DUCT
	EAD	EXHAUST AIR DUCT
	FAR	FRESH AIR REGISTER
	EAR	EXHAUST AIR REGISTER
	BU	BLOWER UNIT
	CU	COMPRESSOR UNIT
	CD	CONDENSATE DRAIN
	LL	LOW LEVEL
	HL	HIGH LEVEL

LEGEND

SYMBOL	CODE	DESIGNATION
	CHWS	CHILLED WATER SUPPLY PIPE
	CHWR	CHILLED WATER RETURN PIPE
	CND	CONDENSATE DRAIN PIPE
	PICCV	PRESSURE INDEPENDENT CHARACTERIZED CONTROL VALVES
	GV	GATE VALVE
	SCD	SUPPLY SQUARE CEILING DIFFUSER
	RCD	RETURN SQUARE CEILING DIFFUSER
	ECD	EXHAUST SQUARE CEILING DIFFUSER
	FAG	FRESH AIR GRILLE
	EG	EXHAUST GRILLE
	SG	SUPPLY GRILLE
	RG	RETURN GRILLE
	DG	DOOR GRILLE
	FAL	FRESH AIR LOUVER
	EAL	EXHAUST AIR LOUVER
	TG	TRANSFER GRILLE
	SLSD	SUPPLY LINEAR SLOT DIFFUSER
	RLSD	RETURN LINEAR SLOT DIFFUSER
	A.H.U	AIR HANDLING UNIT
	FCU	FAN COIL UNIT
	H.R.U	HEAT RECOVERY UNIT
	SA	SOUND ATTENUATOR
	MD	MOTORIZED DAMPER
	VD	VOLUME DAMPER
	BD	BACKDRAFT DAMPER
	FD	FIRE DAMPER
	F.A.F.	AXIAL INLINE FRESH AIR FAN
	E.A.F.	AXIAL INLINE EXHAUST AIR FAN
	E.A.F.	ROOF TOP EXHAUST AIR FAN
	SCPF	STAIRWELL PRESSURIZATION FAN
	RSEF	ROOF SMOKE EXHAUST FAN
	SEG	SMOKE EXHAUST GRILL
	CU	CRACO UNIT
	ACU	AIR CURTAIN UNIT
	JN	JET NOZZLE
	SAD	SUPPLY AIR DUCT
	RAD	RETURN AIR DUCT
	EAD	EXHAUST AIR DUCT
	TAD	TRANSFER AIR DUCT
	FAD	FRESH AIR DUCT
	VAV	VARIABLE AIR VOLUME BOX
	CAV	CONSTANT AIR VOLUME BOX
FM	FM	FLOW METER
	TS	TEMPERATURE SENSOR
	F/A	FROM ABOVE
	F/B	FROM BELOW
	T/A	TO ABOVE
	T/B	TO BELOW
	U/C	UNDER CEILING

KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSULTANT:

ETEC
Established in 1965 - C.R. 16013
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PROJECT:

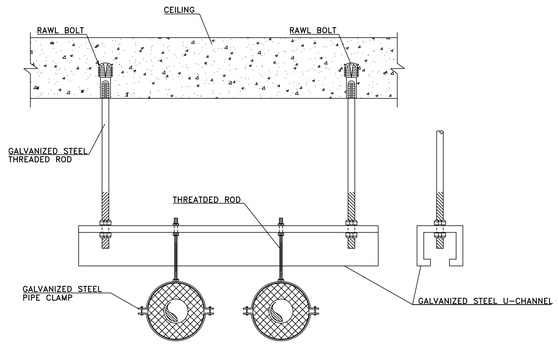
AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

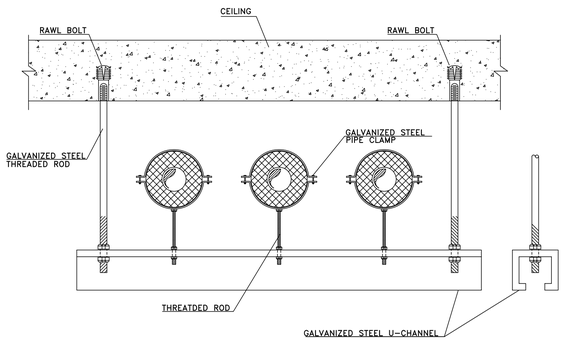
LEGEND AND LIST OF DRAWINGS
MECHANICAL

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APPROVED BY:	E.A.J.	JULY 2026		SCALE	N.T.S.
DRAWING NO.:	M-01			REVISION	00

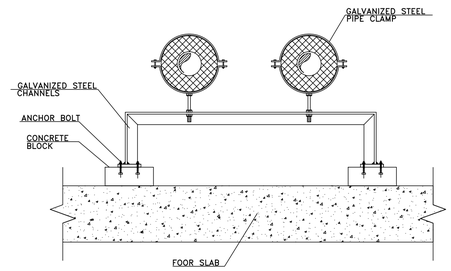
PIPES HANGERS AND SUPPORTING DETAILS



PIPES HANGING FROM CEILING
SIZES UP TO DN80



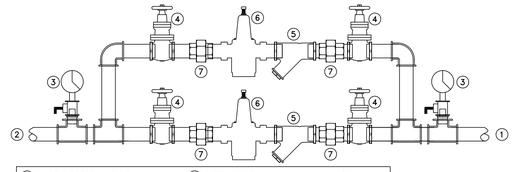
PIPES HANGING FROM CEILING
FOR ALL PIPE SIZES



PIPES RUNNING NEAR FLOOR SLAB
FOR ALL PIPE SIZES

D-01

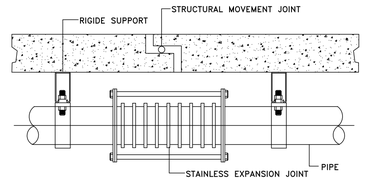
PRESSURE REDUCING VALVE SET DETAIL



① INLET/UPSTREAM PIPE	④ GATE VALVE	⑦ UNION
② OUTLET/DOWNSTREAM PIPE	⑤ STRAINER	
③ PRESSURE GUAGE WITH COCK	⑥ PRESSURE REDUCING VALVE	

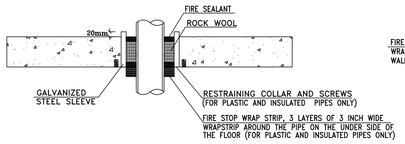
D-02

PIPE PASSING THROUGH STRUCTURAL OVEMENT JOINT

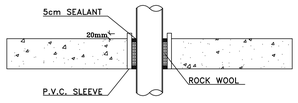


D-03

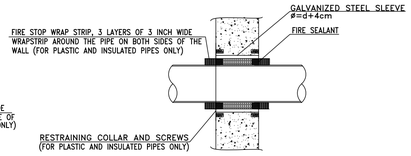
DETAIL OF PIPE PENETRATION THROUGH A FIRE RATED SLAB



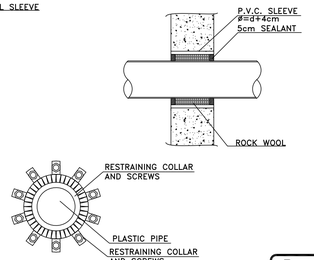
DETAIL OF PIPE PENETRATION THROUGH A NON-FIRE RATED SLAB



DETAIL OF PIPE PENETRATION THROUGH A FIRE RATED WALL



DETAIL OF PIPE PENETRATION THROUGH A NON-FIRE RATED WALL

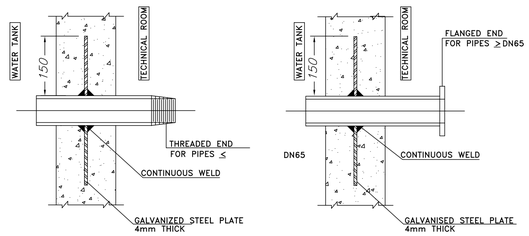


FIRE STOP WRAP STRIP RESTRAINING COLLAR

N.B
FINAL DETAILS OF FIRE RATED PENETRATIONS SHALL BE AS PER THE APPROVED UL SYSTEM FOR EACH CASE DEPENDING ON PIPE MATERIAL , SIZE And REQUIRED FIRE RATING.

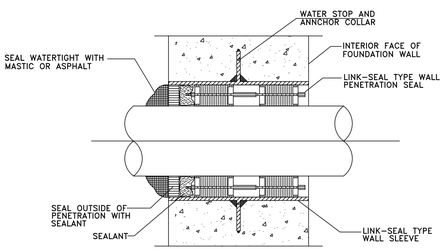
D-04

DETAIL OF PIPE PENETRATION THROUGH WATER TANK WALLS



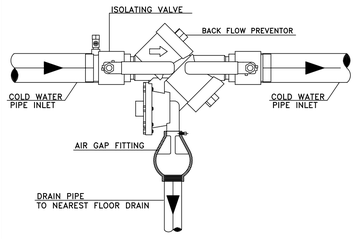
D-05

PIPE SLEEVE THRU EXTERIOR FOUNDATION WALL



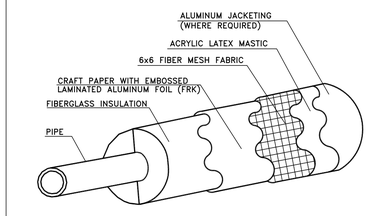
D-06

BACK FLOW PREVENTOR DETAIL



D-07

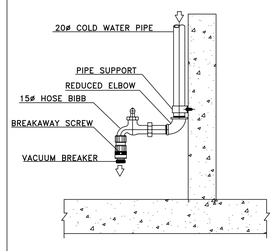
PIPEWORK INSULATION DETAIL



N.B.
EXPOSED INSULATED PIPES SHALL BE PROVIDED WITH ALUMINUM JACKETING.

D-08

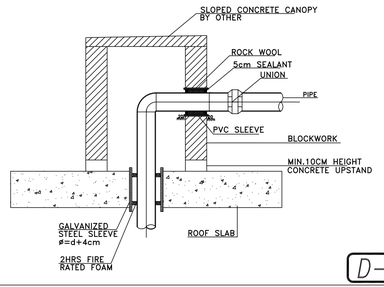
HOSE BIBB DETAIL



N.B.
HOSE BIBS IN OPEN AREAS SHALL BE PROVIDED WITH A LOCK MECHANISM.

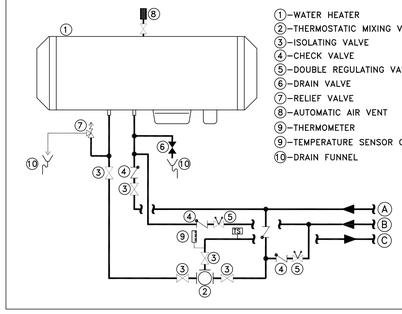
D-09

DETAIL OF PIPE PENETRATION THROUGH ROOF



D-10

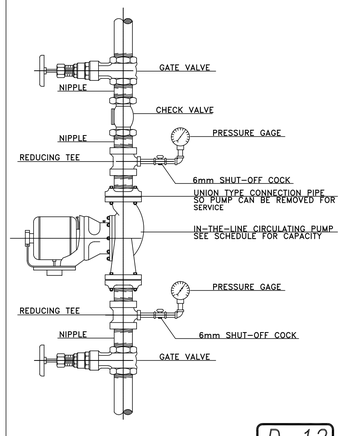
WATER HEATER W/MIXING VALVE CONNECTION DETAIL



①-WATER HEATER	Ⓐ-DOMESTIC COLD WATER
②-THERMOSTATIC MIXING VALVE	Ⓑ-DOMESTIC HOT WATER
③-ISOLATING VALVE	Ⓒ-DOMESTIC HOT WATER RETURN
④-CHECK VALVE	
⑤-DOUBLE REGULATING VALVE	
⑥-DRAIN VALVE	
⑦-RELIEF VALVE	
⑧-AUTOMATIC AIR VENT	
⑨-THERMOMETER	
⑨-TEMPERATURE SENSOR CONNECTED TO BMS	
⑩-DRAIN FUNNEL	

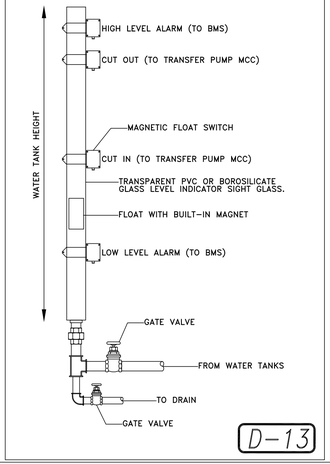
D-11

IN-LINE CIRCULATOR INSTALATION DETAIL



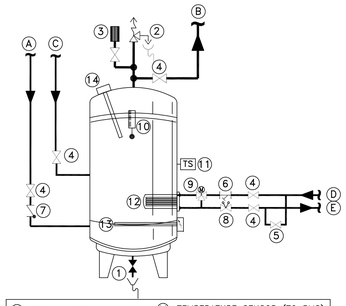
D-12

DETAIL OF WATER TANK LEVEL INDICATOR W/FLOAT SWITCHES



D-13

HOT WATER STORAGE TANK DETAIL



①-DRAIN VALVE	⑪-TEMPERATURE SENSOR (TO BMS)
②-PRESSURE RELIEF VALVE	⑫-HEAT EXCHANGER
③-AUTOMATIC AIR VENT	⑬-ELECTRICAL RESISTANCE WITH INTEGRATED SAFETY THERMOSTAT
④-ISOLATING VALVE	⑭-ANODE
⑤-BYPASS VALVE	
⑥-STRAINER	
⑦-CHECK VALVE	
⑧-DOUBLE REGULATING VALVE	Ⓐ-DOMESTIC COLD WATER
⑨-3 WAY MODULATING VALVE	Ⓑ-DOMESTIC HOT WATER
⑩-THERMOMETER	Ⓒ-DOMESTIC HOT WATER RETURN
	Ⓓ-HEATING WATER SUPPLY
	Ⓔ-HEATING WATER RETURN

KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSULTANT:

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Established in 1965 - C.R. 16013
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Tel: 961/1/364304/5 Fax: 1/367747
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PROJECT:

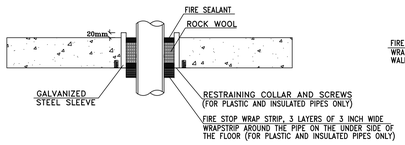
AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

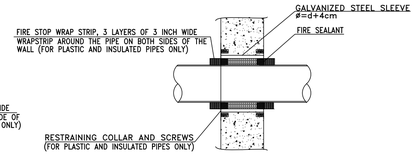
TYPICAL DETAILS 1/7
MECHANICAL

DRAWN BY:	Name G.N.	Date JULY 2026	Signature	FILE:	ASGH-M02
CHECKED BY:	M.T.	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	N.T.S.
DRAWING NO.:	M-02			REVISION	00

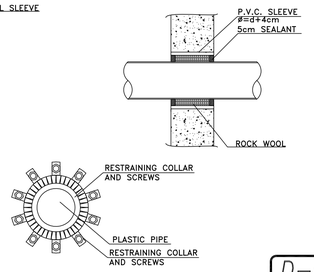
DETAIL OF PIPE PENETRATION THROUGH A FIRE RATED SLAB



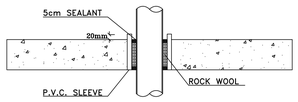
DETAIL OF PIPE PENETRATION THROUGH A FIRE RATED WALL



DETAIL OF PIPE PENETRATION THROUGH A NON-FIRE RATED WALL



DETAIL OF PIPE PENETRATION THROUGH A NON-FIRE RATED SLAB

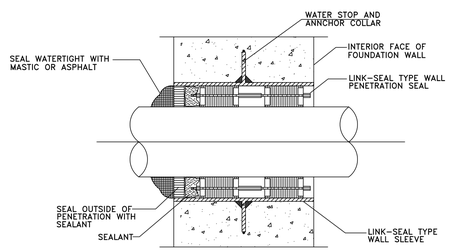


N.B
FINAL DETAILS OF FIRE RATED PENETRATIONS SHALL BE AS PER THE APPROVED UL SYSTEM FOR EACH CASE DEPENDING ON PIPE MATERIAL , SIZE AND REQUIRED FIRE RATING.

FIRE STOP WRAP STRIP RESTRAINING COLLAR

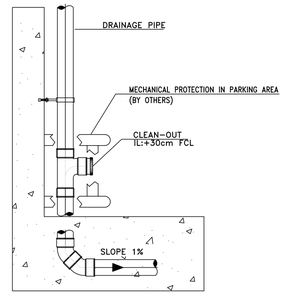
D-01

PIPE SLEEVE THRU EXTERIOR FOUNDATION WALL



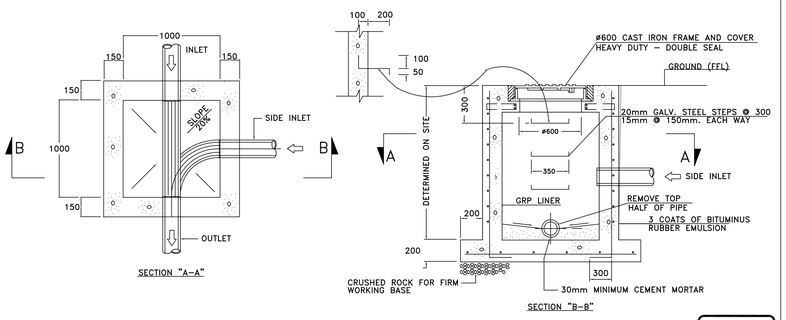
D-02

PIPE FROM HIGH LEVEL TO RAFT WITH VERTICAL CLEANOUT



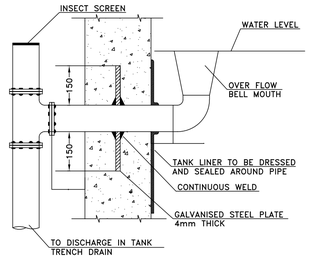
D-03

MANHOLE DETAIL



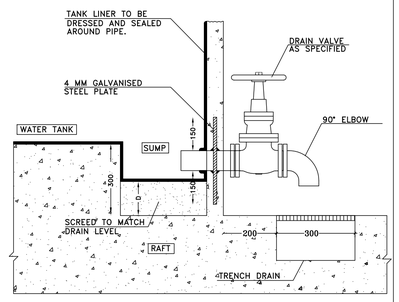
D-04

WATER TANK OVERFLOW DETAIL



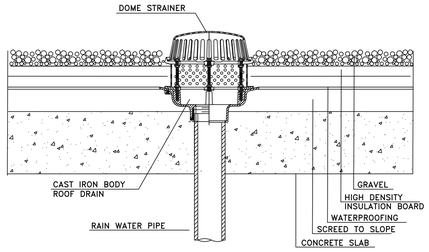
D-05

WATER TANK DRAIN DETAIL



D-06

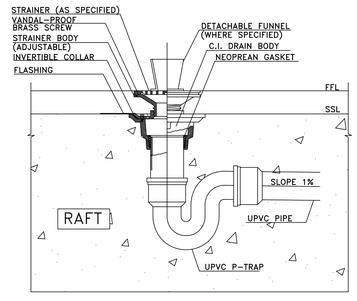
ROOF DRAIN TYPICAL DETAIL



NOTE
FOR WATERPROOFING DETAIL REFER TO ARCHITECTURAL DRAWINGS.

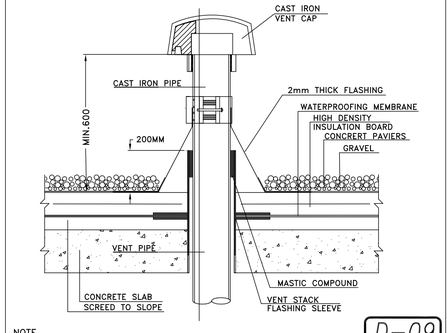
D-07

FLOOR DRAIN IN RAFT TYPICAL DETAIL



D-08

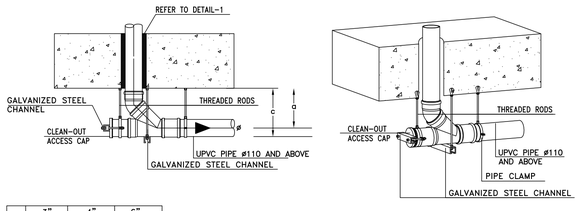
VENT THRU ROOF DETAIL



NOTE
FOR WATERPROOFING DETAIL REFER TO ARCHITECTURAL DRAWINGS.

D-09

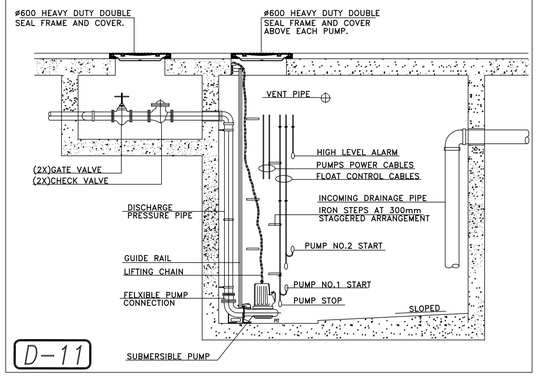
UPVC PIPE CLEANOUT DETAIL



ø	3" (82mm)	4" (110mm)	6" (160mm)
c	265mm	310mm	440mm
a	220mm	250mm	360mm

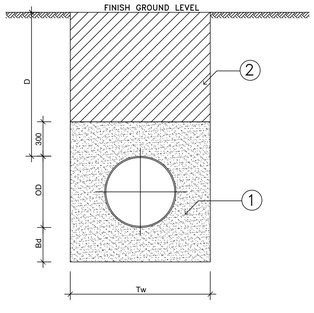
D-10

SUMP PIT DETAIL



D-11

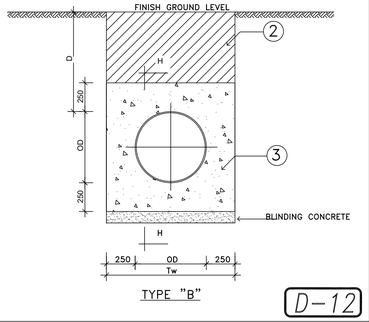
DETAIL OF PIPE BEDDING



TYPE OF BEDDING / FILLING MATERIAL	
①	GRANULAR MATERIAL WELL COMPACTED UNDER AND AROUND THE PIPE. OR CRUSHED AGGREGATE
②	MATERIAL SELECTED FROM TRENCH EXCAVATION WELL COMPACTED TO 95% OF MAXIMUM DRY DENSITY
③	MASS CONCRETE CLASS 110 / 25

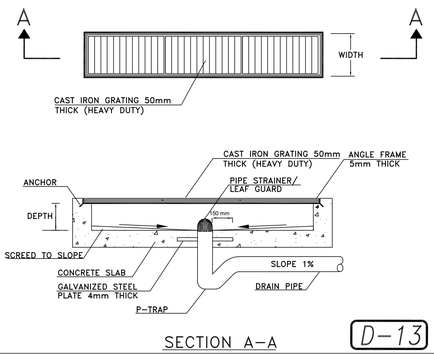
NOTES

1- OD = EXTERNAL DIAMETER OF PIPE
2- D = DEPTH OF COVER (m)
3- TW = 3 PIPE DIAMETERS
4- DEPTH OF BEDDING (Bd)
Bd = 150mm IN SOIL
Bd = 250mm IN ROCK
5- TYPE " A " BEDDING SHALL BE USED WHEN 1200 < D < 5000 mm
TYPE " B " SHALL BE USED:
a - WHEN D < 1200
b - AT SEWER LINE / WATER LINE CROSSING. WHERE THE VERTICAL DISTANCE IS LESS THAN 0.5m THE PIPE SHALL BE ENCASED FOR A DISTANCE OF AT LEAST 4.0m ON EACH SIDE OF THE WATER PIPE.
c - DEPTH (D) OF COVER EXCEEDS 5.0m
6 - WHEN POURING CONCRETE THE PIPE MUST BE RESTRAINED AGAINST MOVEMENT BY STRAPPING



D-12

GUTTER DRAIN CONNECTION DETAIL



SECTION A-A

D-13

KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSULTANT:

ETEC
Established in 1965 - C.R. 16013
P.O.BOX 11-5079 BEIRUT-LEBANON
Tel: 961/1/364304/5 Fax: 1/367747
E-mail : etecsal@cyberia.net.lb
WEB SITE: WWW. etecsal.com

PROJECT:

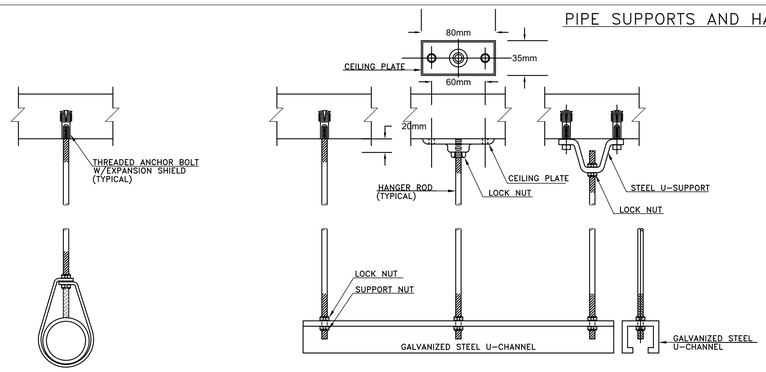
AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

TYPICAL DETAILS 2/7
MECHANICAL

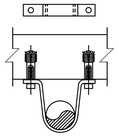
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CHECKED BY:	M.T.	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	N.T.S.
DRAWING NO.:	M-03			REVISION	00

PIPE SUPPORTS AND HANGERS DETAILS

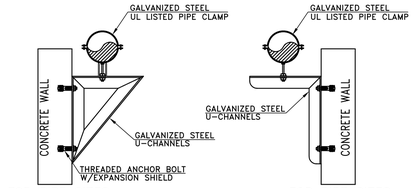


BAND / SWIVEL HANGER CONCRETE SLAB

CHANNEL SUPPORT CONCRETE SLAB



CLIP HANGER CONCRETE SLAB



FOR PIPE SIZES ø80 & ABOVE

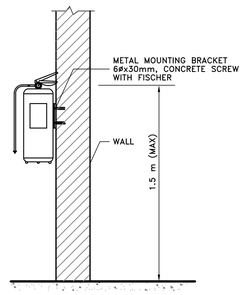
FOR PIPE SIZES UP TO ø65

PIPE SIZE (MM)	DIA. OF U-BOLT (MM)	DIA. OF ANCHOR BOLT (MM)	SIZE OF ANGLE BAR (MM)
50	10	10	40 x 40 x 6THK.
65	13	13	40 x 40 x 6THK.
80	13	13	50 x 50 x 6THK.
100	13	13	50 x 50 x 6THK.
150	16	16	50 x 50 x 6THK.
200	16	16	65 x 65 x 6THK.

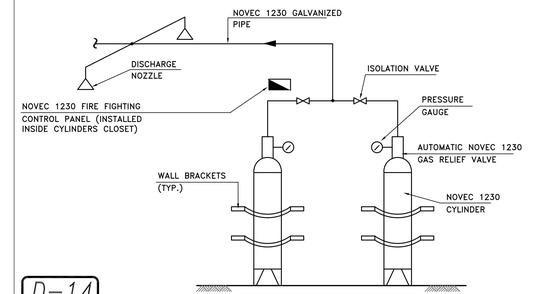
WALL SUPPORT CONCRETE WALL

N.B. : BOLTS AND ANCHORS SIZES AND HANGERS SPACING SHALL BE ACCORDING TO THE LATEST EDITION OF NFPA-13

FIRE EXTINGUISHER DETAIL

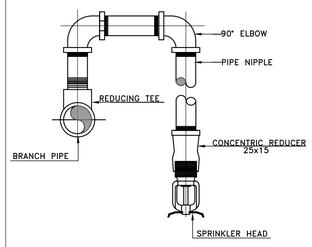


CLEAN AGENT INSTALLATION DETAIL

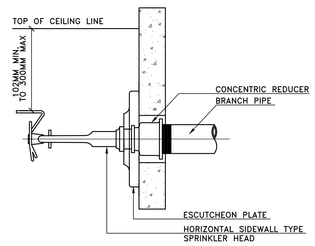


D-14

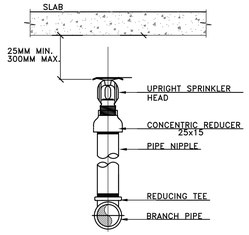
PENDENT SPRINKLER HEAD DETAIL



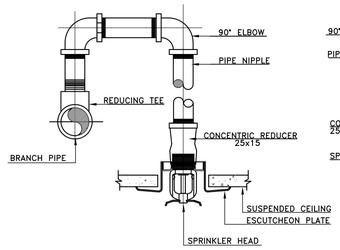
SIDE WALL SPRINKLER HEAD DETAIL



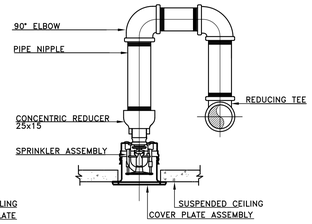
UPRIGHT SPRINKLER HEAD DETAIL



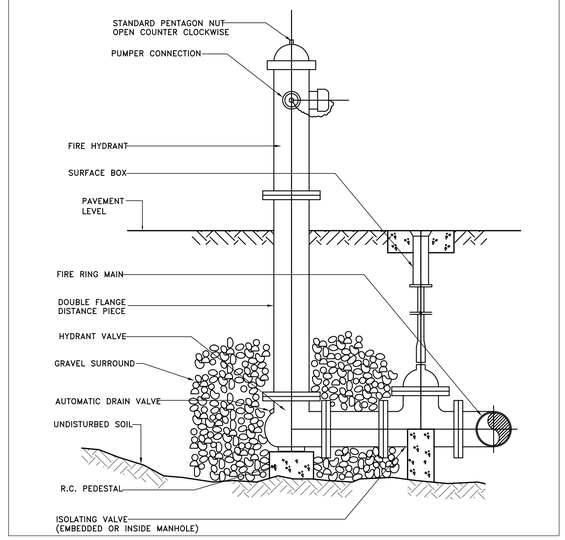
PENDENT RECESSED SPRINKLER HEAD DETAIL



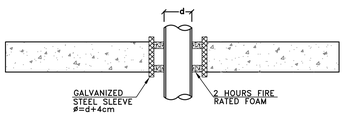
CONCEALED PENDENT SPRINKLER HEAD DETAIL



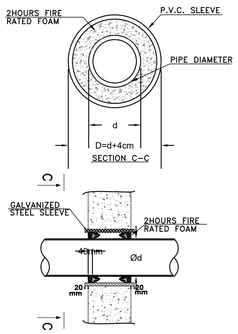
FIRE HYDRANT



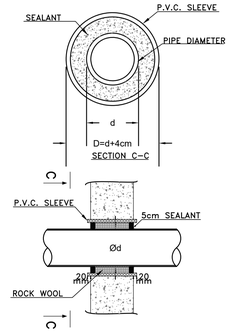
DETAIL OF PIPE PENETRATION THROUGH A FIRE RATED SLAB



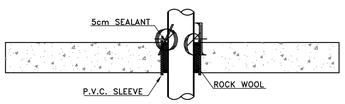
DETAIL OF PIPE PENETRATION THROUGH A FIRE RATED WALL



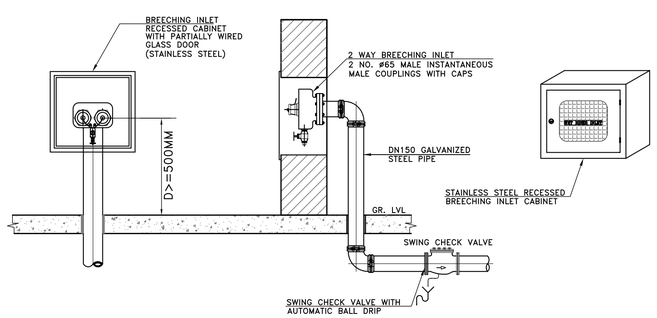
DETAIL OF PIPE PENETRATION THROUGH A NON-FIRE RATED WALL



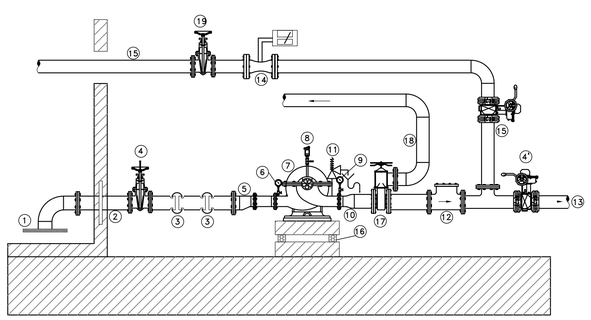
DETAIL OF PIPE PENETRATION THROUGH A NON-FIRE RATED SLAB



FIRE DEPARTMENT CONNECTION DETAIL

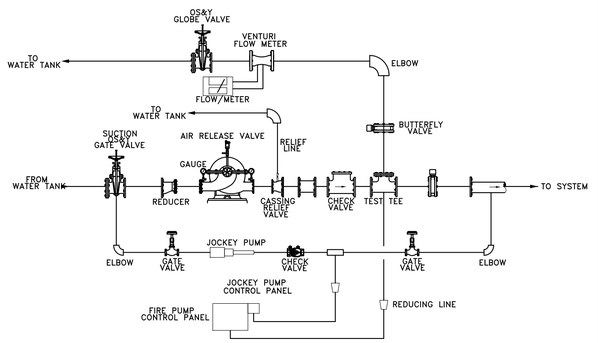


ELECTRIC MOTOR DRIVEN FIRE PUMP

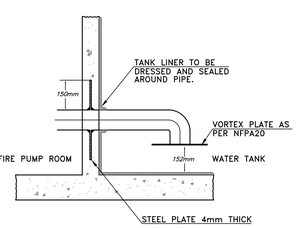


1. ENTRANCE ELBOW AND SQUARE STEEL VORTEX PLATE WITH DIMENSIONS AT LEAST TWICE THE DIAMETER OF THE SUCTION PIPE. DISTANCE ABOVE THE BOTTOM OF TANK IS ONE-HALF THE DIAMETER OF THE SUCTION PIPE WITH MINIMUM OF (152mm)
2. SUCTION PIPE
3. FLEXIBLE COUPLINGS FOR STRAIN RELIEF
4. O S & Y GATE VALVE WITH TAMPER SWITCH (MONITORED)
4. MONITORED INDICATING BUTTERFLY VALVE
5. ECCENTRIC REDUCER
6. SUCTION GAUGE
7. HORIZONTAL SPLIT-CASE FIRE PUMP
8. AUTOMATIC AIR RELEASE
9. DISCHARGE GAUGE
10. CONCENTRIC REDUCER
11. RELIEF VALVE
12. DISCHARGE CHECK VALVE
13. SUPPLY PIPE FOR FIRE PROTECTION SYSTEM
14. VENTURI FLOW METER
15. TEST line
16. ISOLATING PAD
17. MAIN RELIEF VALVE (ON DIESEL PUMP)
18. RELIEF LINE
19. O S & Y GLOBE VALVE WITH TAMPER SWITCH (MONITORED)

FIRE PUMP & CONTROLLER ARRANGEMENT DETAIL



SUCTION FEED TYPICAL DETAIL



KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSULTANT:

ETEC
Established in 1965 - C.R. 16013
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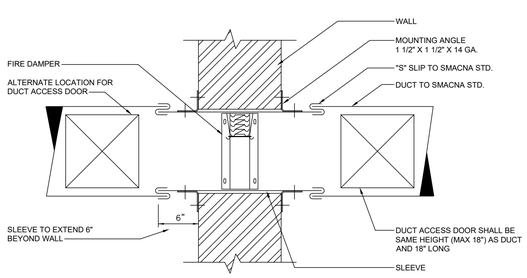
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

TYPICAL DETAILS 3/7
MECHANICAL

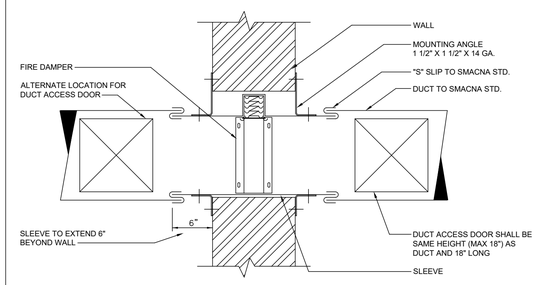
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APPROVED BY:	E.A.J.	JULY 2026		SCALE	N.T.S.
DRAWING NO.:	M-04			REVISION	00



NOTES

1. OPENING IN WALL SHALL BE 1 CM TO 1 1/2 CM LARGER THAN OVERALL SIZE OF FIRE DAMPER.
2. SLEEVE SHALL BE 16 GA. FOR DAMPERS 36" W X 24" H AND 14 GA. IF WIDTH EXCEEDS 36" OR HEIGHT EXCEEDS 24"
3. CEILING ACCESS PANEL BY GENERAL CONTRACTOR. SEE REFLECTED CEILING PLANS.

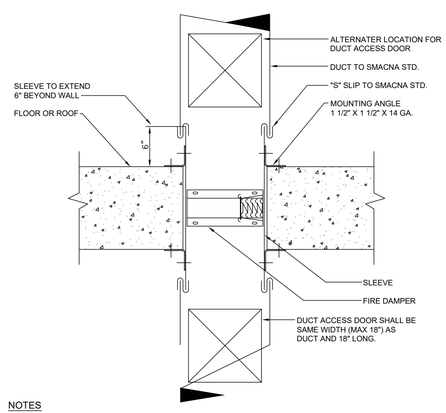
VERTICAL FIRE DAMPER FOR DUCTS OVER 12" IN HEIGHT



NOTES

1. OPENING IN WALL SHALL BE 1 CM TO 1 1/2 CM LARGER THAN OVERALL SIZE OF FIRE DAMPER.
2. SLEEVE SHALL BE 16 GA. FOR DAMPERS 36" WIDE AND 14 GA. IF WIDTH EXCEEDS 36".
3. CEILING ACCESS PANEL BY GENERAL CONTRACTOR. SEE REFLECTED CEILING PLANS.

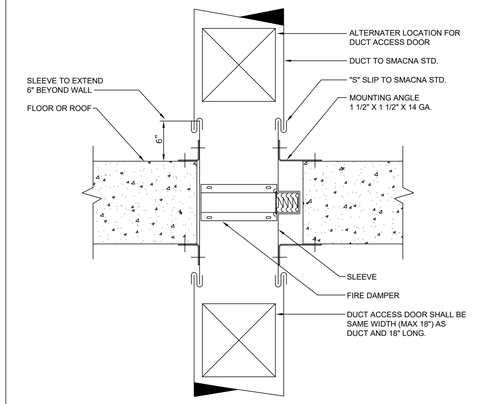
VERTICAL FIRE DAMPER FOR DUCTS UP TO 12" IN HEIGHT



NOTES

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2. SLEEVE SHALL BE 16 GA. FOR DAMPERS 36"W X 24"H AND 14 GA. IF WIDTH EXCEEDS 36" OR HEIGHT EXCEEDS 24"
3. CEILING ACCESS PANEL BY GENERAL CONTRACTOR. SEE REFLECTED CEILING PLANS.

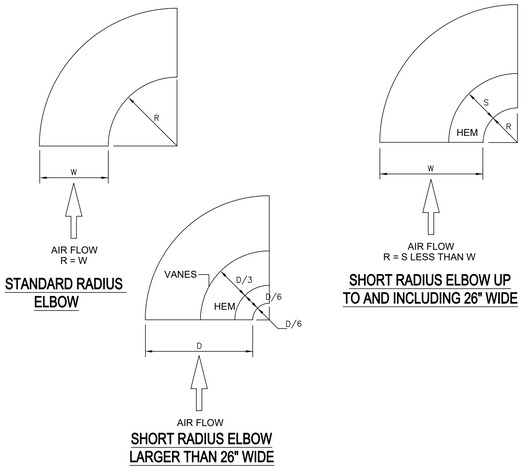
HORIZONTAL FIRE DAMPER FOR DUCTS OVER 12" IN HEIGHT



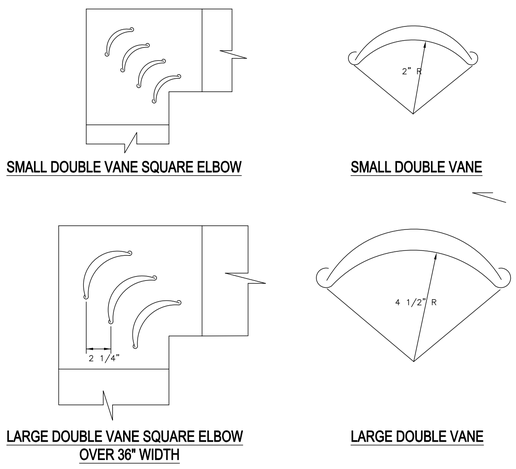
NOTES

1. OPENING IN WALL SHALL BE 1 CM TO 1 1/2 CM LARGER THAN OVERALL SIZE OF FIRE DAMPER.
2. SLEEVE SHALL BE 16 GA. FOR DAMPERS 36" WIDE AND 14 GA. IF WIDTH EXCEEDS 36".
3. CEILING ACCESS PANEL BY GENERAL CONTRACTOR. SEE REFLECTED CEILING PLANS.

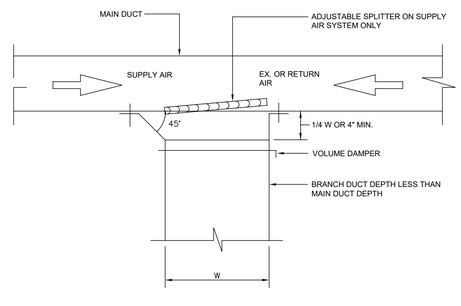
HORIZONTAL FIRE DAMPER FOR DUCTS UP TO 12" IN HEIGHT



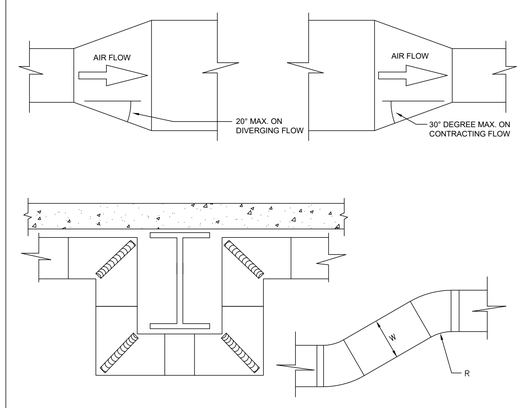
ROUND ELBOW



SQUARE ELBOW



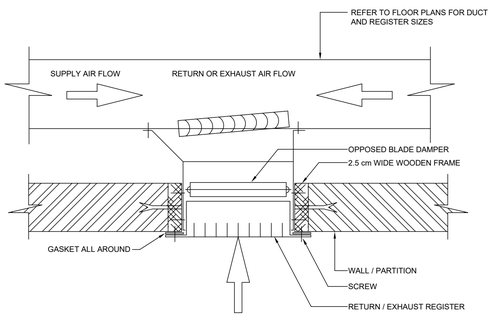
TYPICAL SPLITTER DAMPER AT TAKE-OFF



NOTES

ROUND RADIUS ELBOW TO BE USED WHENEVER SPACE PERMITS. OTHERWISE MITERED 90 DEGREE SHALL BE USED.

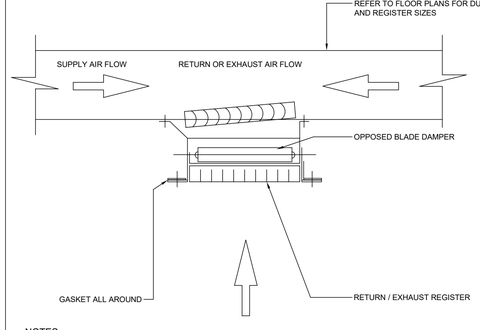
TAPERS – OFFSETS



NOTES

1. CONNECTION TO SUPPLY REGISTER IDENTICAL.
2. IN PLASTER FINISHED WALLS, FURNISH AND INSTALL MATCHING PLASTER FRAME FOR REGISTER OR GRILLE.
3. WHERE REGISTER IS LAST ON LINE OR BRANCH, EXTEND DUCT TWO NECK DIAMETERS BEFORE ENDING DUCT.

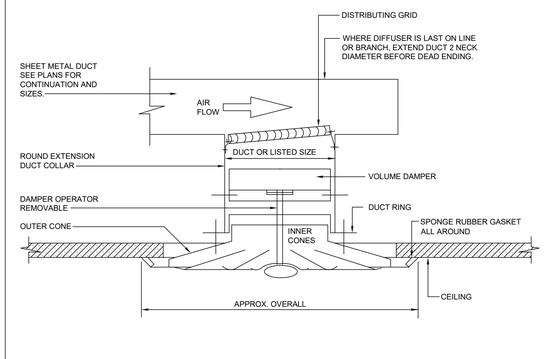
TYPICAL DUCT CONNECTION TO REGISTER



NOTES

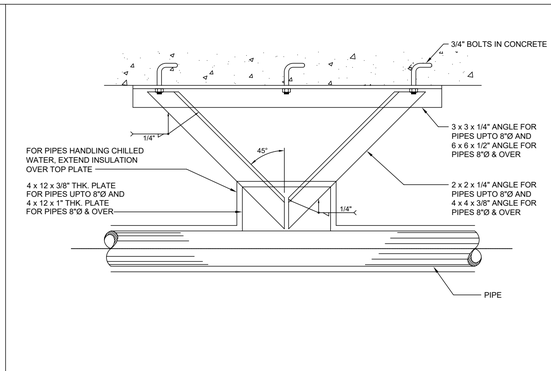
1. CONNECTION TO SUPPLY REGISTER IDENTICAL
2. WHERE REGISTER IS LAST ON LINE OR BRANCH EXTEND DUCT TWO NECK DIAMETERS BEFORE ENDING DUCT.

FLUSH MOUNTED REGISTER IN DUCT



ROUND DIFFUSER WITH ROUND NECK
FLUSH FIXED PATTERN

FLUSH MOUNTED DIFFUSER IN CEILING



PIPE ANCHOR (FOR HORIZONTAL PIPES)

KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSULTANT:

ETEC
Established in 1965 - C.R. 16013
P.O.BOX 11-6079 BEIRUT-LEBANON
Tel: 961/1/364304/5 Fax: 1/367747
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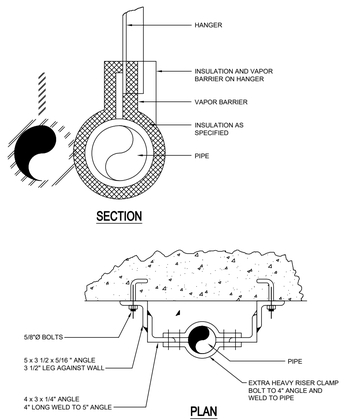
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

TYPICAL DETAILS 4/7
MECHANICAL

DRAWN BY:	Name G.N.	Date JULY 2026	Signature	FILE:	ASGH-M05
CHECKED BY:	M.T.	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	N.T.S.
DRAWING NO.:	M-05			REVISION	00



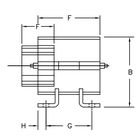
SECTION

PLAN

COLD WATER PIPING

WHERE COLD OR CHILLED WATER IS CARRIED IN PIPES, INSULATION WITH VAPOR BARRIER SHALL BE PROVIDED ON ANCHOR PLATES AND STRUTS TO POINTS 8" CLEAR OF PIPE INSULATION.

SIZE NO.	THICKNESS OF INSULATION IN INCHES					
	1	1 1/2	2	2 1/2	3	4
1	1					
2	1 1/4 – 2	1				
3	2 1/2	1 1/4 – 2		1		
4	3 – 3 1/2	3 1/2 – 4	2 1/2	1 – 2	1	
5	5 – 6	4 – 5	3 – 3 1/2	2 1/2 – 3	1 1/4 – 2 1/2	1
6	8	6	5 – 6	4 – 5	3 – 4	1 1/4 – 2 1/2
7	10	8	8	6	5 – 6	3 – 4
8	12	10	10	8	8	5 – 6
9	14	12 – 14	12	10	10	8
10	16	16	14	12 – 14	12	10
11	18	18	16	16	14	12
12	20	20	18 – 20	18 – 20	16 – 18	14 – 16
13	24	24	24	24	20	18 – 20
14	30	30	30	30	24	24
15	36	36	36	36	30	30



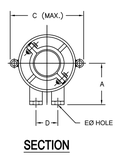
ELEVATION

SIZE NO.	A	B	C	D	E	100TS 4"-6" BARREL		100TR 8" BARREL		100TL 12" BARREL		SPIDER	
						F	G	F	G	F	G	H	W
1	3 3/4	6 3/8	5 3/8	2 1/4	5/8	4	8	6	12	10		1	2
2	4 3/8	7 1/8	7 3/8	2 7/8	5/8	4	8	6	12	10		1	2 1/2
3	4 7/8	8 1/8	8 3/8	3 3/8	5/8	4	8	6	12	10		1	2 1/2
4	5 7/8	10 1/8	10 3/8	4 3/8	5/8	4	8	6	12	10		1	3
5	6 7/8	12 1/4	12 3/8	5 3/8	5/8	6	8	6	12	10		1	4
6	7 7/8	14 1/4	14 3/8	6 3/8	5/8	6	8	6	12	10		1	4
7	8 7/8	16 1/4	16 1/2	7 3/8	3/4	–	–	8	6	12	10	1	4
8	9 7/8	18 1/4	18 1/2	8 3/8	3/4	–	–	8	6	12	10	1	4
9	11	20 1/2	20 3/4	9 1/2	3/4	–	–	8	6	12	10	1	4
10	12	22 1/2	22 3/4	10 1/2	7/8	–	–	8	6	12	10	1	4
11	13	24 1/2	24 3/4	11 1/2	7/8	–	–	8	6	12	10	1	4
12	15 1/8	26 3/4	32 1/8	15 5/8	1	–	–	–	–	12	10	2	6
13	17 1/8	32 3/4	36 1/8	15 5/8	1	–	–	–	–	12	10	2	6
14	20 1/4	39	42 3/8	18 3/4	1 1/4	–	–	–	–	12	10	2	6
15	23 1/4	45	48 3/8	21 3/4	1 1/4	–	–	–	–	12	10	2	6

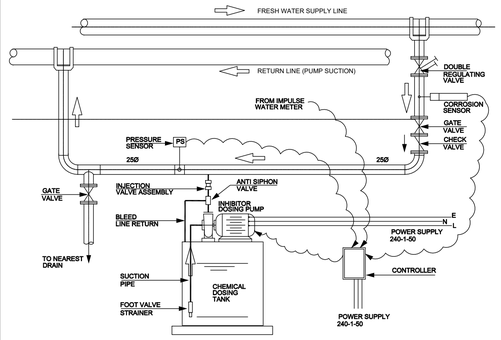
To select the correct size Guide for use with Covered piping.

Example :- 8 inch pipe to be covered with 2 inch thick of covering. Follow down on Column No. 4 to 8 inch pipe size and you will find the correct guide to be used is No. 7 shown in Column No. 1.

ALL DIMENSIONS ARE IN INCHES



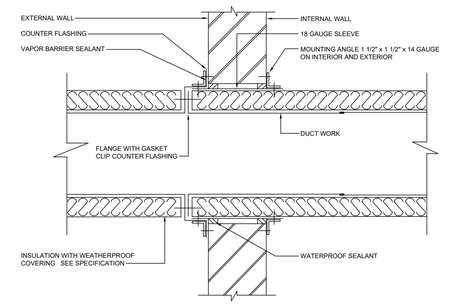
SECTION

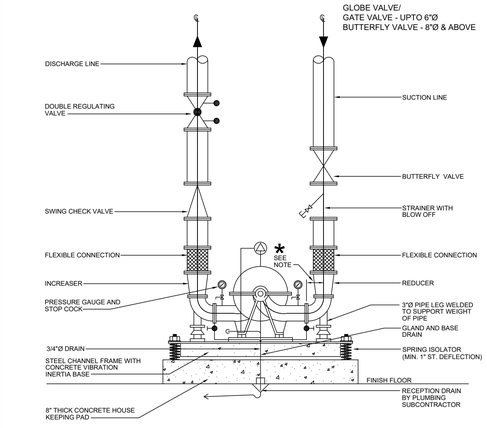


CLOSED CHILLED WATER TREATMENT AUTOMATIC DOSING SYSTEM

NOTE :

THE HVAC CONTRACTOR SHALL PROVIDE COMPLETE PACKAGE CHILLED WATER TREATMENT SYSTEM (AUTO CLOSED SYSTEM CHEMICAL TREATMENT) AS PER SPECIFICATION SECTION 22, PART 10.06-HVAC SYSTEM AND SECTION 22, PART 10.08-WATER TREATMENT SYSTEM.





NOTE

IF THIS DISTANCE IS < 8 PIPE DIA. USE SUCTION DIFFUSER. USE SUCTION DIFFUSER WHERE NECESSARY.

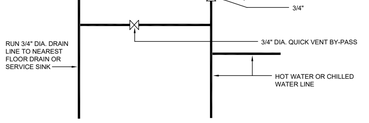
PIPE ANCHOR (FOR VERTICAL PIPES)

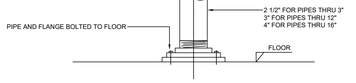
PIPE GUIDE

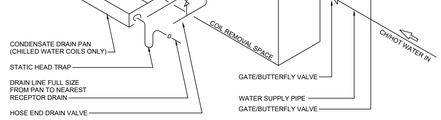
CHEMICAL SHOT FEEDER (AUTOMATIC)

DUCT WORK THRU EXTERNAL WALL

DOUBLE SUCTION PUMP



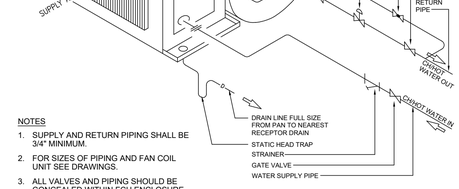




COOLING OR HEATING

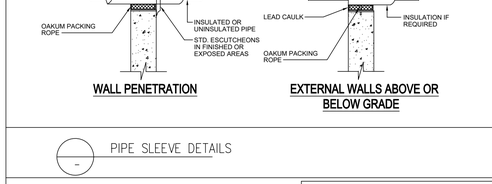
GLOBE VALVE/
GATE VALVE - UPTO 6"Ø
BUTTERFLY VALVE - 8"Ø & ABOVE

PROVIDE PORTS FOR PRESSURE GAUGE & THERMOMETER IN CASE OF FCU INSTALLATION



NOTES

1. SUPPLY AND RETURN PIPING SHALL BE 3/4" MINIMUM.
2. FOR SIZES OF PIPING AND FAN COIL UNIT SEE DRAWINGS.
3. ALL VALVES AND PIPING SHOULD BE CONCEALED WITHIN FCU ENCLOSURE. FOR CABINET TYPE UNITS VALVES SHALL BE INSTALLED ABOVE EXTENDED DRAIN SECTION.



FLOOR PENETRATION DRY LOCATION

FLOOR PENETRATION MECH. ROOMS / WET AREAS

WALL PENETRATION

EXTERNAL WALLS ABOVE OR BELOW GRADE

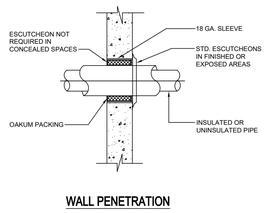
PIPE SLEEVE DETAILS

WATER SYSTEM HIGH POINT VENT

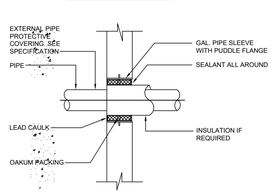
PIPE STANCHION SUPPORT

TWO WAY VALVE CONTROL FOR AHU WATER COILS WITH CONSTANT FLOW VALVE

FAN COIL UNIT PIPING DETAIL (TWO WAY CONTROL VALVE WITH CONSTANT FLOW VALVE

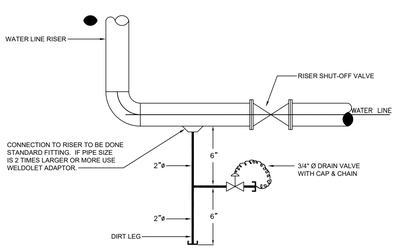


WALL PENETRATION



EXTERNAL WALLS ABOVE OR BELOW GRADE

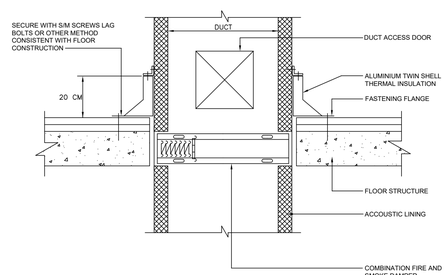
PIPE SLEEVE DETAILS



NOTES

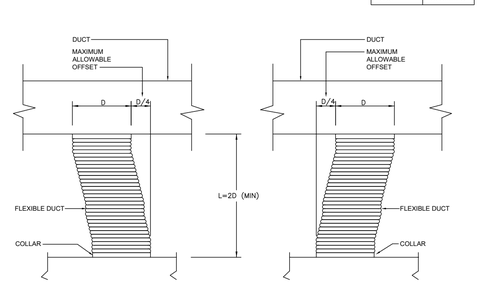
1. DETAIL APPLIES FOR ALL WATER RISING MORE THAN 10'-0" ABOVE MAIN.
2. DRAIN VALVE TO BE PLACED IN ACCESSIBLE LOCATION.

WATER RISER



DETAIL OF DUCT PENETRATION THRU MECHANICAL FLOOR

FLEXIBLE DUCT FOR LINEAR DIFFUSER	
CFM.	SIZE
150	150mm Ø
200	200mm Ø
250	250mm Ø
350	300mm Ø



FLEXIBLE DUCT CONNECTIONS

KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

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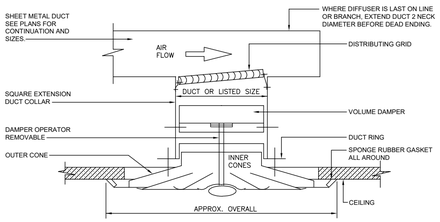
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

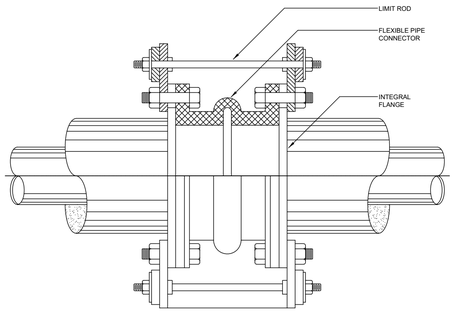
TYPICAL DETAILS 5/7
MECHANICAL

	Nome	Date	Signature		
DRAWN BY:	G.N.	JULY 2026		FILE:	ASCH-M06
CHECKED BY:	M.T.	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	N.T.S.
DRAWING NO.:	M-06			REVISION	00

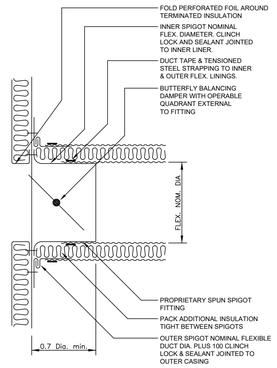


SQUARE DIFFUSER WITH SQUARE NECK FLUSH FIXED PATTERN

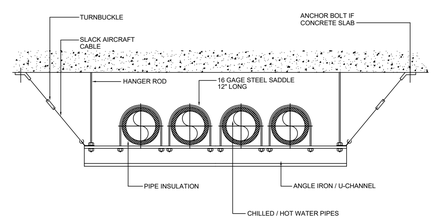
INSTALLATION OF SQUARE CEILING DIFFUSER



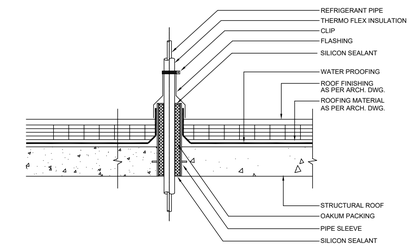
FLEXIBLE PIPE CONNECTOR / EXPANSION JOINT



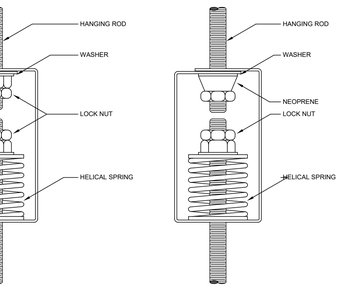
FLEXIBLE DUCT VAPOR SEALED SPIGOT DETAIL



PIPE SUPPORT DETAIL



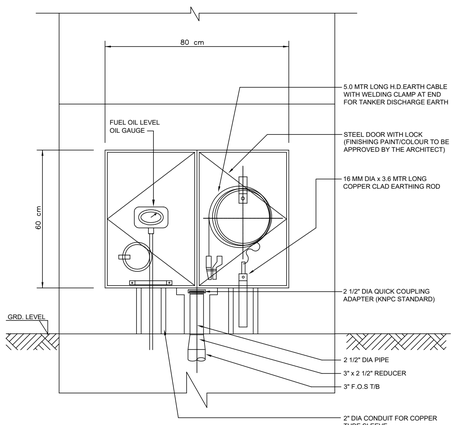
REFRIGERANT PIPE PENETRATION THRU ROOF



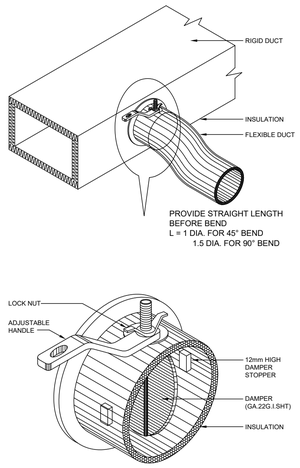
TYPE - 7 (SPRING HANGER) FREE STANDING SPRING (ISOLATOR WITH LOCK NUT)

TYPE - 6 (RUBBER HANGER) FREE STANDING SPRING (ISOLATOR WITH NEOPRENE PAD)

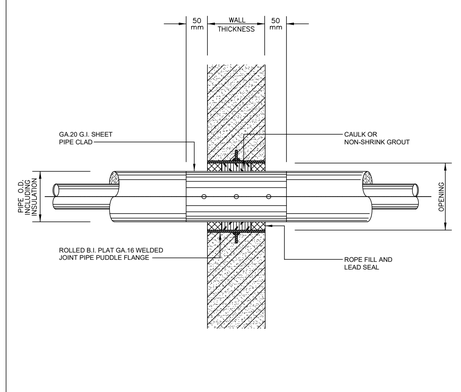
VIBRATION ISOLATOR HANGER MOUNT



FUEL OIL FILL BOX DETAILS



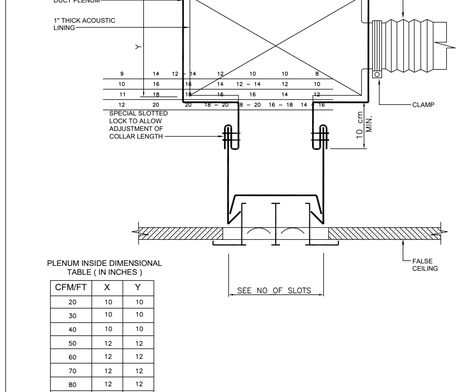
FLEXIBLE ROUND DUCT CONNECTION DETAIL



NOTES

1. TYPICAL DETAIL FOR INSULATED PIPE EXCEPT WITHOUT CLAD.

PIPE INSULATION THRU EXTERNAL WALL (UNDER GROUND)

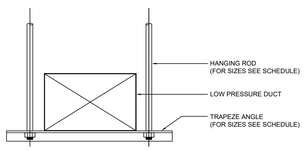


PLENUM INSIDE DIMENSIONAL TABLE (IN INCHES)

CFM/FT	X	Y
20	10	10
30	10	10
40	10	10
50	12	12
60	12	12
70	12	12
80	12	12
90	12	12
100	12	12
110	12	12
120	12	12

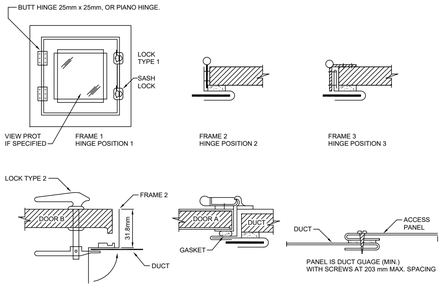
NOTE.
PLENUM LENGTH SHALL BE 1" LONGER THAN THE LINEAR SLOT DIFFUSER.

LINEAR DIFFUSER PLENUM DETAILS



DUCT SUPPORT SCHEDULE				
MAX. DIMENSION (INCHES)		MAXIMUM SUPPORT DISTANCE (FT.)	ROD SIZE (INCH)	TRAPEZE ANGLE SIZE (INCH)
SUPPORTED SIZE HORIZONTAL	OTHER SIDE VERTICAL			
12	12	10	1/4	1 x 1 x 16 GA.
12	18	8	1/4	1 x 1 x 1/8
48	36	8	1/4	1 1/2 x 1 1/2 x 1/8
60	36	6	1/4	1 1/2 x 1 1/2 x 3/16
72	48	4	1/4	1 1/2 x 1 1/2 x 3/16
96	48	4	3/8	2 1/2 x 2 1/2 x 1/4
FOR DIMENSIONS ABOVE 96" (HORIZONTAL SIDE) AND ABOVE 48" (VERTICAL SIDE), REFER TO TABLES 5-1 AND 5-3 FROM SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS.				

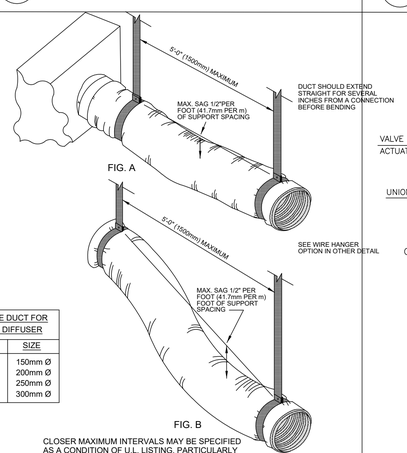
DUCT HANGERS AND SUPPORTS



	DOOR SIZE (MM)	NO. OF HINGES	NO. OF LOCKS	METAL GUAGE (MM)		
				FRAME	DOOR	BACK
500 Pa STATIC AND LESS	305 x 305	2	1–S	0.70	0.55	0.55
	406 x 508	2	2–S	0.85	0.70	0.55
	610 x 610	3	2–S	0.85	0.85	0.55
750 Pa STATIC	305 x 305	2	1–S	0.85	0.85	0.55
	406 x 508	2	1–S,1–T,1–B	1.00	1.00	0.55
	610 x 610	3	2–S,1–T,1–B	1.00	1.00	0.70
1000 Pa TO 2500 Pa	305 x 305	2	1–S,1–T,1–B	1.00	1.00	0.55
	406 x 508	3	2–S,1–T,1–B	0.85	1.31	0.70
	610 x 610	3	2–S,2–T,2–B	1.31	1.31	0.70
S = SIDE OPPOSITE HINGES, T = TOP, B = BOTTOM						

* CONSTRUCTION AND AIR TIGHTNESS MUST BE SUITABLE FOR THE DUCT PRESSURE CLASS USED.

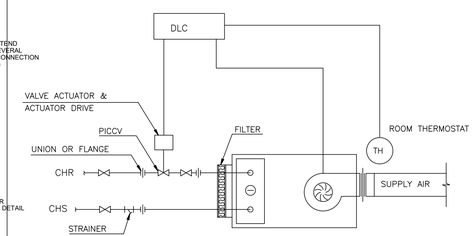
DUCT ACCESS DOORS AND PANELS



FLEXIBLE DUCT FOR LINEAR DIFFUSER	
CFM.	SIZE
150	150mm Ø
200	200mm Ø
250	250mm Ø
350	300mm Ø

CLOSER MAXIMUM INTERVALS MAY BE SPECIFIED AS A CONDITION OF U.L. LISTING, PARTICULARLY IN FIRE RATED FLOOR - CEILING ASSEMBLIES.

FLEXIBLE DUCT SUPPORTS



2–WAY TYPICAL CONNECTION DETAIL OF AHUs & FCUs

KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

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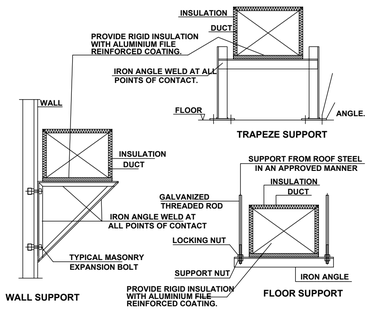
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

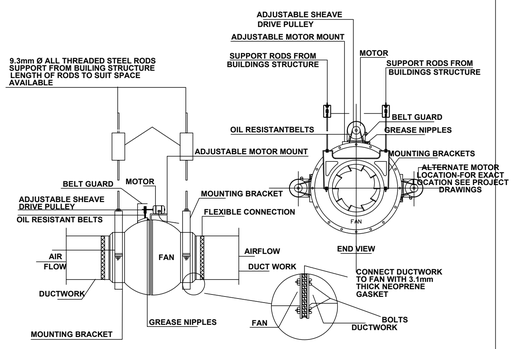
TITLE:

TYPICAL DETAILS 6/7
MECHANICAL

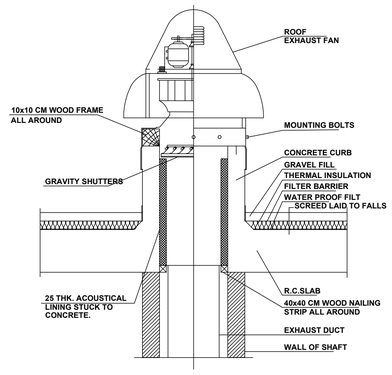
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CHECKED BY:	M.T.	JULY 2026		SIZE:	A1
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DUCTWORK SUPPORT DETAIL



INLINE FAN DETAIL



ROOF EXHAUST FAN DETAIL

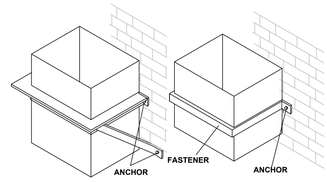


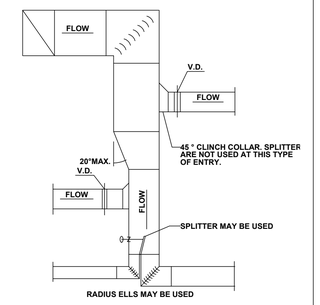
FIG.(B)
SUGGESTED SIZING

DUCT SIZE	ANGLE
750X300	25X25X3
900X450	25X25X3
1050X600	32X32X3
1200X750	32X32X3

FIG.(A)
SUGGESTED SIZING

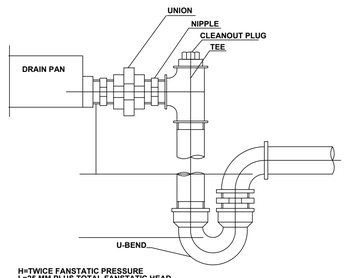
DUCT SIZE	BAND
450X300	40X16ga
600X500	25X31

DUCT RISER SUPPORTS FROM WALL



TYPICAL EXHAUST OR RETURN DUCT

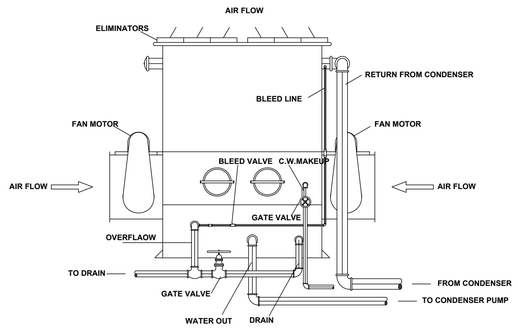
ROOF EXHAUST FAN DETAILS



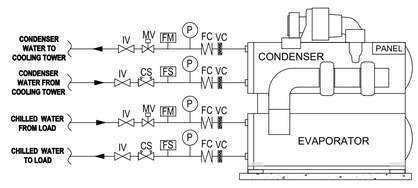
NOTES:-

1: ALLOW SUFFICENT SPACE BELOW DRAIN PAN FOR TRAP.
2: PITCH DRAIN FOR PROPER RUN OFF.
3: MANUALLY PRIME FIL. TRAP BEFORE START UP TO FORM INTIAL DRAINSEALL.
4: ALL MEDICAL AHUS SHALL HAVE RIGID GLASS DRAINGE TRAP & PIPE
5: ALL OTHER AHUS SHALL BE OF DWV COPPER.

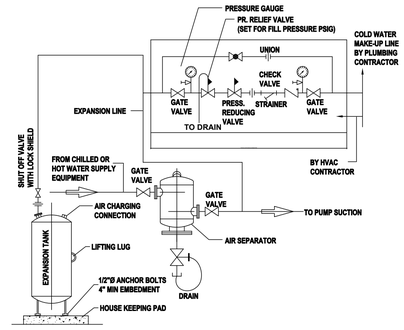
DETAIL OF AIR HANDLING UNIT CONDENSATE DRAIN CONNECTION



DETAIL OF COOLING TOWER



DETAIL OF WATER COOLED CHILLER



DETAIL OF EXPANSION TANK & AIR SEPARATOR PIPING

KEY PLAN:

Rev.	Description	Drawn	Checked	Approved	Date

REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

CONSULTANT:

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PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

TYPICAL DETAILS 7/7
MECHANICAL

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PLUMBING GENERAL NOTES

1- THE PLUMBING DRAWINGS SHALL BE READ AS ONE UNIT INCLUDING PLANS, RISER DIAGRAMS AND MISCELLANEOUS DETAILS.

2- PLUMBING DRAWINGS SHALL BE READ WITH THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, A/C AND OTHER DRAWINGS FOR COORDINATION, VERIFICATION OF ADEQUATE SPACES AND EARLY DETERMINATION OF ANY CONTRADICTIONS OR INTERFERENCE PER THE PROVISIONS OF THE SPECIFICATION.

3- THE DRAWINGS ARE ISSUED FOR PLUMBING WORKS ONLY AND SHALL NOT BE USED FOR ARCHITECTURAL, STRUCTURAL OR OTHER WORKS.

4- DRAWINGS SHALL NOT BE SCALED FOR EXECUTING THE WORKS. ALL MEASUREMENTS SHALL BE MADE FROM ESTABLISHED LINES, LEVELS & BENCH MARKS.

5- THE DRAWINGS ARE ONLY DIAGRAMMATIC. THE CON- TRACTOR SHALL EXECUTE ALL WORK IN ACCORDANCE WITH APPROVED SHOP AND INSTALLATION DRAWINGS PER THE PROVISIONS OF THE SPECIFICATION.

6- FOR EQUIPMENT CAPACITIES, RATINGS, TYPES AND CHARACTERISTICS REFER TO THE "SCHEDULE OF EQUIPMENT" DRAWINGS.

7- FOR SERVICES CONNECTED WITH A/C WORKS REFER TO A/C DRAWINGS FOR THE EXACT LOCATION, SIZE AND OTHER REQUIREMENTS, ALL SUCH SERVICES SHALL BE COORDINATED WITH THE A/C TRADE.

9- PLUMBING WORKS REQUIRING ELECTRICAL SERVICES SHALL BE COORDINATED WITH THE ELECTRICAL TRADE.

10- PIPE MATERIAL WHEN NOT SHOWN ON DRAWINGS SHALL BE AS PER SPECIFICATION.

11- ALL PIPES PASSING BUILDING EXPANSION JOINT SHALL BE EQUIPPED WITH FLEXIBLE CONNECTION.

12- PIPE SLOPE WHERE IT IS NOT INDICATED SHALL BE MINIMUM 1%.

12- VENT PIPES SHALL TERMINATE OUTSIDE AND AT LEAST 3.6 M ABOVE GROUND LEVEL. VAPORS SHALL BE DISCHARGED UPWARD OR HORIZONTALLY AWAY FROM ADJACENT WALLS. VENT OUTLETS SHALL BE LOCATED SO THAT VAPORS WILL NOT BE TRAPPED BY LEAVES OR OTHER OBSTRUCTIONS AND SHALL BE AT LEAST 1.5 M FROM BUILDING OPENINGS.

13- FUEL TANKS OPENINGS FOR GAUGING SHALL BE PROVIDED WITH A VAPOR TIGHT CAP OR COVER.

14- FUEL TANK FILL PIPES THAT ENTER THE TOP OF IT SHALL TERMINATE WITHIN 150 MM OF THE BOTTOM OF THE TANK. FILL PIPES SHALL BE INSTALLED OR ARRANGED SO THAT VIBRATION IS MINIMIZED.

15- FUEL TANK FILLING AND EMPTYING CONNECTIONS SHALL BE CLOSED AND LIQUID TIGHT WHEN NOT IN USE AND SHALL BE PROPERLY IDENTIFIED.

16- DAILY FUEL TANK SHALL BE PITCHED TOWARD THE OPENING WITH A SLOPE OF NOT LESS THAN 1/4 IN. /FT (20 MM/M) OF LENGTH.

17- UNDERGROUND FUEL TANKS SHALL BE COVERED WITH NOT LESS THAN 2 FT (0.6 M) OF EARTH. MAXIMUM DEPTH OF COVER SHALL BE SPECIFIED BY THE TANK MANUFACTURER AND MARKED ON THE TANK.

18- FINAL SELECTION FOR SWIMMING POOL EQUIPMENTS & ACCESSORIES SHALL BE ACCORDING TO THE SELECTED SUPPLIER RECOMMENDATIONS & REQUIREMENTS

FIRE FIGHTING GENERAL NOTES

1- THE FIRE FIGHTING DRAWINGS SHALL BE READ AS ONE UNIT INCLUDING PLANS, RISER DIAGRAMS AND MISCELLANEOUS DETAILS.

2- FIRE FIGHTING DRAWINGS SHALL BE READ WITH THE ARCHITECTURAL, STRUCTURAL,PLUMBING, ELECTRICAL, A/C AND OTHER DRAWINGS FOR COORDINATION, VERIFICATION OF ADEQUATE SPACES AND EARLY DETERMINATION OF ANY CONTRADICTIONS OR INTERFERENCE PER THE PROVISIONS OF THE SPECIFICATION.

3- THE DRAWINGS ARE ISSUED FOR FIRE FIGHTING WORKS ONLY AND SHALL NOT BE USED FOR ARCHITECTURAL, STRUCTURAL OR OTHER WORKS.

4- DRAWINGS SHALL NOT BE SCALED FOR EXECUTING THE WORKS. ALL MEASUREMENTS SHALL BE MADE FROM ESTABLISHED LINES, LEVELS & BENCH MARKS.

5- THE DRAWINGS ARE ONLY DIAGRAMMATIC. THE CON- TRACTOR SHALL EXECUTE ALL WORK IN ACCORDANCE WITH APPROVED SHOP AND INSTALLATION DRAWINGS PER THE PROVISIONS OF THE SPECIFICATION.

6- FOR EQUIPMENT CAPACITIES, RATINGS, TYPES AND CHARACTERISTICS REFER TO THE "SCHEDULE OF EQUIPMENT" DRAWINGS.

7- ALL PIPE RUNS SHOWN ARE AT CEILING LEVEL EXCEPT WHERE NOTED OTHERWISE.

8- FIRE FIGHTING WORKS REQUIRING ELECTRICAL SERVICES SHALL BE COORDINATED WITH THE ELECTRICAL TRADE.

9- PIPE MATERIAL WHEN NOT SHOWN ON DRAWINGS SHALL BE AS PER SPECIFICATION.

10- ALL PIPES PASSING BUILDING EXPANSION JOINT SHALL BE EQUIPPED WITH FLEXIBLE CONNECTION.

11- IN LOCATIONS WHERE OBSTRUCTIONS SUCH AS STRUCTURAL BEAMS OR MECHANICAL EQUIPMENT LIMIT THE SPRINKLER COVERAGE AREA, DOUBLE LAYER SPRINKLERS SHOULD BE CONSIDERED TO ACHIEVE FULL COVERAGE IN COMPLIANCE WITH NFPA 13.

12- FIRE HOSE CABINETS EXACT LOCATION TO BE COORDINATED WITH ARCHITECTURAL DRAWINGS.

13- CONTRACTOR TO PREPARE HYDRAULIC CALCULATION AND PROVIDE INSTALLATIONS DETAILS.

14- CONTRACTOR TO PROVIDE DETAILED DRAWINGS FOR CLEAR AGENT FIRE SUPPRESSION SYSTEM PROTECTING SPECIAL HAZARDS.

12- PIPE MATERIALS SHOULD BE AS FOLLOWS AND AS SPECIFIED.

-AUTOMATIC SPRINKLER AND STANDPIPE SYSTEMS PIPING SHALL BE SCH40 SEAMLESS BLACK STEEL.

-ALL PIPES IN FIRE PUMP ROOM UPSTREAM THE ALARM CHECK VALVE SHALL BE SCH40 SEAMLESS GALVANIZED STEEL.

-AUTOMATIC SPRINKLER SYSTEM DRAIN PIPES SHOULD BE SCH40 SEAMLESS GALVANIZED STEEL.

-FIRE DEPARTMENT CONNECTION PIPING SHOULD BE SCH40 SEAMLESS GALVANIZED STEEL.

13- ALL ISOLATING CONTROL VALVES SHALL BE UL LISTED INDICATING VALVES AND SHALL BE PROVIDED WITH SUPERVISORY SWITCHES CONNECTED TO THE FIRE CONTROL PANEL.

14- THE VALVE DOWNSTREAM OF FLOW METER SHALL BE GLOBE TYPE FOR EASE OF THROTTLING.

15- ALL PORTABLE TYPE FIRE EXTINGUISHERS SHALL BE UL LISTED AND SHALL COMPLY TO NFPA 10.

16- PIPE SIZES ARE AS PER NFPA 13 - PIPE SCHEDULE METHOD FOR TENDERING PURPOSES ONLY.CONTRACTOR SHALL SUBMIT FOR APPROVAL FINAL PIPE SIZING BASED ON NFPA 13 - HYDRAULIC ANALYSIS METHOD BEFORE ANY INSTALLATION.

17- HYDRAULIC CALCULATIONS FOR FIRE PUMP DUTY SHALL BE SUBMITTED BY THE CONTRACTOR FOR ENGINEER'S REVIEW AND APPROVAL.

18- CLEAN AGENT SYSTEMS DESIGN AND LAYOUTS ARE FOR TENDERING PURPOSES ONLY. GAS VOLUMES, DESIGN, SIZING, HYDRAULIC CALCULATIONS, NOZZLES AND DETECTORS DISTRIBUTION SHALL BE DONE BY A SPECIALIST AND SUBMITTED TO THE ENGINEER FOR APPROVAL.

19- THE INSTALLATION OF SPRINKLER/FIRE FIGHTING SYSTEM SHALL BE IN ACCORDANCE WITH NFPA 10, NFPA 13, NFPA 14, NFPA 20 AND NFPA 2001.

20- ALL EQUIPMENTS AND ACCESSORIES OF SPRINKLER/FIRE FIGHTING SYSTEM SHALL BE APPROVED BY UNDERWRITERS LABORATORIES (UL) AND/OR FACTORY MUTUAL (FM).

21- SEISMIC RESTRAINTS SHALL BE PROVIDED FOR ALL FIRE FIGHTING PIPES AS REQUIRED BY NFPA13.RELEVANT CALCULATIONS SHALL BE PROVIDED FOR ENGINEER'S APPROVAL.

22- PIPE EXPANSION JOINT ASSEMBLY SHALL BE PROVIDED WHEREVER IT IS REQUIRED.

23- IN FALSE CEILING ABOVE 90cm, ALL MATERIAL SHOULD BE NON-COMBUSTIBLE. OTHERWISE, SPRINKLERS SHALL BE INSTALLED ABOVE FALSE CEILIING

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AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

GENERAL NOTES 1/2
MECHANICAL

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GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR CO-ORDINATING HIS WORK WITH THE WORK OF ALL OTHER TRADES, MAKING ANY NECESSARY MODIFICATIONS TO THE WORK AT NO ADDITIONAL COST.
2. LOCATION OF ALL MECHANICAL SERVICES INTEGRATED WITH FINISHED WORK SUCH AS AIR OUTLETS, THERMOSTATS, WALL AND CEILING ACCESS PANELS ARE TO BE APPROVED BY THE ARCHITECT.
3. ALL OUTSIDE AIR INLETS AND OUTLETS ARE TO BE PROVIDED WITH GALVANIZED 1/4" WIRE MESH SCREENS.
4. SIZES ON INTERNALLY LINED DUCT WORK INDICATES NET CLEAR SIZE OF INTERIOR SURFACE, INCREASE SHEET METAL SIZES ACCORDINGLY.
5. AUTOMATIC / MANUAL AIR VENTS ARE TO BE PROVIDED WITH DRAIN TUBING TO NEAREST DRAIN POINT.
6. PROVIDE DRAIN POINTS AND MAKE CONNECTION TO NEAREST DRAIN POINT IN ALL HVAC DUCT CONNECTED TO OUTSIDE AIR (FRESH AIR EXHAUST AIR) LOUVERS.
7. DRAIN POINT WITH DIRT LEG SHALL BE PROVIDED AT THE BOTTOM OF ALL VERTICAL RISERS.
8. CONDENSATE DRAIN PIPE FROM INDIVIDUAL FAN COIL UNITS SHALL BE 1"Ø AND FROM AIR HANDLING UNITS SHALL BE 2"Ø. CONNECT DRAIN TO NEAREST F.F.D.
9. ALL F.F.D. (FUNNEL FLOOR DRAIN) SHALL BE PROVIDED BY PLUMBING CONTRACTOR.
10. ALL CONDENSATE DRAIN PIPE FINAL CONNECTION POINTS HAVE TO BE TERMINATED AT DRAIN POINTS AS SHOWN ON DRGS. DRAIN POINTS SHALL BE PROVIDED BY PLUMBING CONTRACTOR
11. NO FAN COIL UNITS TO BE INSTALLED INSIDE ELECTRICAL AND CONTROL ROOM. FAN COIL UNITS TO BE INSTALLED OUTSIDE THE ROOM WITH DUCTED SUPPLY AND RETURN .
12. SOUND ATTENUATORS SHALL BE SELECTED TO PROVIDE REQUIRED ATTENUATION TO ACHIEVE NC LEVEL IN INDIVIDUAL OCCUPIED AREA. PRESSURE DROP SHALL BE LIMITED TO 0.3". ALL MAIN SUPPLY AND RETURN DUCTS SUPPLYING AREAS TO MEET NC 35 OF HIGHER NOISE CRITERIA SHALL HAVE MINIMUM 5 FEET LONG DUCT SILENCERS. FOR CRITICAL AREAS REQUIRING NOISE CRITERIA NC 30 , MAIN SUPPLY AND RETURN DUCTS SHALL BE PROVIDED WITH MINIMUM 10 FEET LONG DUCT SILENCERS,IT IS THE CONTRACTOR RESPONSIBILITY TO SELECT APPROPRIATE SOUND ALTERNATORS FOR EACH AIR HANDLING UNIT

GENERAL NOTES

13. VOLUME CONTROL DAMPERS SHALL BE PROVIDED IN EVERY BRANCH DUCT FROM INDIVIDUAL MAIN / BRANCH DUCTS WHETHER SHOWN ON DRAWING OR NOT. VOLUME CONTROL DAMPERS SHALL BE PROVIDED IN EVERY BRANCH DUCT / MAIN DUCT CONNECTING EVERY INDIVIDUAL SUPPLY AIR OUTLETS AND RETURN / EXHAUST INLETS.
14. OPPOSED BLADE DAMPERS SHALL BE INSTALLED IN ALL SUPPLY, RETURN, EXHAUST AIR OUTLETS / INLETS WHETHER SHOWN ON DRAWINGS OR NOT. ALL SUPPLY / RETURN / EXHAUST OUTLETS / INLETS SHOWN ON DRAWING AS GRILLES / LINEAR BAR GRILLES ETC. SHALL ALSO BE TREATED AS REGISTERS.
15. PROVIDE FIRE DAMPERS / MOTORIZED COMBINATION FIRE SMOKE DAMPERS AS PER REQUIREMENTS OF NFPA / LOCAL FIRE BRIGADE DEPARTMENT WHETHER SHOWN ON DESIGN DRAWINGS OR NOT. CONTRACTOR SHALL SUBMIT ARCHITECTURAL FIRE ZONES DRAWING INDICATING ALL DUCT PENETRATING THE FIRE WALLS AND ALSO INDICATE ALL FIRE / MOTORIZED DAMPERS & OBTAIN LOCAL CIVIL DEFENSE APPROVAL. THE DAMPERS ITS ACTUATORS AND ALL OTHER ACCESSARIES SHALL BE ACCESSIBLE FOR INSPECTION TESTING AND SERVICE.
16. FOR EXACT LOCATION OF AIR OUTLETS / INLETS REFER ARCH. REFLECTED CEILING PLANS.
17. ALL COMMERCIAL KITCHEN HOOD EXH. DUCT MATERIAL SHALL BE STAINLESS STEEL SS-304.
18. ALL AIR HANDLING UNITS SHALL BE PLACED ON CONCRETE HOUSE KEEPING PAD 15 CM. HIGH, EXTENDING 10CM BEYOND UNIT. REFER TO STANDARD DETAILS.
19. FINAL LOCATION OF ALL THERMOSTATS ARE TO BE CO-ORDI-NATED AT SITE AS DIRECTED BY THE SITE ENGINEER. THERMOSTATS TO BE LOCATED NEAR RETURN AIR @1.7MTs. FROM FINISH FLOOR LEVEL.
20. THERMOSTAT SHALL BE PROVIDED FOR EACH AIR CONDITIONING UNIT WHETHER SHOWN ON THE DRAWING OR NOT. ALL VAV BOXES SHALL BE PROVIDED COMPLETE WITH THERMOSTATS. ONLY FOR PRIVATE ROOM.FOR PUBLIC AREAS,A TEMPERATURE SENSOR IS TO BE PROVIDED IN THE RETURN DUCT,AND TEMPERATURE SHALL BE CONTROLLED BY THE BMS.
21. NET LOUVER AREA SHALL BE MINIMUM 50% OF GROSS AREA. SEE ARCHITECTURAL DRAWINGS FOR LOUVER DETAILS.
22. REMOTE FAN START / STOP SWITCH SHALL BE PROVIDED IN AREA SERVED, OR AT ENTRANCE DOOR (AS PER SITE ENGR.) FOR ALL FANS.

GENERAL NOTES

23. CONTRACTOR SHALL COORDINATE ON SITE FOR PROVISIONS OF WALL OPENINGS ABOVE FALSE CEILING @ 2.5 m/s VELOCITY (MAXIMUM) FOR RETURN AIR PASSAGE BACK TO UNIT. PROVIDE FIRE DAMPERS ON ALL RETURN AIR OPENINGS ABOVE FALSE CEILING PASSING THROUGH FIRE RATED WALLS, AS PER REQUIREMENT OF LOCAL FIRE BRIGADE DEPARTMENT.
24. CONTRACTOR IS RESPONSIBLE FOR ACHIEVING THE SPECIFIED NOISE LEVELS IN VARIOUS AREAS. CONTRACTOR SHALL INCLUDE ACOUSTIC INSULATION, LOW NOISE FANS, ETC. TO ACHIEVE THE SAME.
25. CONTRACTOR SHALL PROVIDE (AT NO EXTRA COST) ALL NECESSARY RISES, DROPS, AND OFFSETS IN DUCTWORK TO SATISFY FIELD CONDITIONS.
26. ALL DUCT TURNS, ELBOWS, ETC. SHALL BE INSTALLED WITH TURNING VANES OR MINIMUM 1-1/2 RADIOS ELBOWS.
27. ALL FINAL DIFFUSER BALANCING SHALL BE ACCOMPLISHED WITH MANUAL DAMPERS AT THE SPIN COLLARS. DAMPERS AT THE DIFFUSERS SHOULD BE USED FOR AIR DIRECTION CONTROL ONLY.
28. ALL MAIN SUPPLY AND RETURN DUCTS SHALL HAVE 1" THICK ACOUSTIC LINING EXTENDING UP TO THE FIRST BRANCH. FOR CRITICAL AREAS SUCH AS AUDITORIUM, GYMNASIUM, LIBRARY, ASSEMBLY HALL, ACOUSTIC LINING SHALL BE PROVIDED FOR ALL SUPPLY AND RETURN AIR DUCT WORK SERVING THESE AREAS.
29. ANY DUCT PENETRATIONS OF SEPARATION WALLS WHICH COULD ENABLE CROSS TALK SHALL BE PROVIDED WITH 1" THICK ACOUSTIC LINER.
30. ALL DUCTS DOWNSTREAM OF VAV/BYPASS VAV BOXES (IF USED IN THE PROJECT) SHALL BE LINED WITH 2"THICK ACOUSTIC LINING FOR MINIMUM 10 FEET DISTANCE.
31. ALL VAV BOXES SHALL BE CHOSEN TO HAVE A RADIATED SOUND POWER LEVEL IN THE 125 HZ OCTAVE BAND OF 60 DB OR LESS. ALL AIR OUTLETS / INLETS SHALL BE SELECTED SUCH THAT THE DESIRED NC LEVEL IS NOT EXCEEDED. ALL SLOT DIFFUSERS SHALL HAVE ACOUSTICALLY LINED PLENUM.
32. ALL DUCT, CONDUIT AND OTHER PENETRATIONS OF PARTITIONS AND FLOOR/CEILING SLABS SHALL BE SEALED AIR TIGHT WITH ACOUSTIC SEALANT/FIRE RATED COMPOUND.
33. DUCTWORK ASPECT RATIOS, TAPERS AND BRANCHES SHALL BE DESIGNED TO AVOID TURBULENT AIR FLOW AND SELF GENERATED NOISE.ASPECT RATIO SHALL NOT EXCEED 1:4 UNDER ANY CONDITIONS

GENERAL NOTES

34. FLEXIBLE DUCTWORKS SHALL BE LINED TO MAXIMUM 5 FEET LONG. SHARP BENDS, KINKS AND CONDITIONS THAT RESTRICT AIR FLOW IN ANY WAY WILL NOT BE ACCEPTED.
35. SLOT DIFFUSER VANES SHALL BE ADJUSTED TO ELIMINATE OBJECTIONABLE DRAFTS.
36. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL OF GAGES AND CONSTRUCTION IN ACCORDANCE WITH SMACNA LOW VELOCITY DUCT MANUAL AND ASHARE RECOMMENDATIONS.
37. LINEAR DIFFUSER LENGTHS INDICATED ON PLANS ARE ACTIVE LENGTH ONLY. CONTRACTOR TO VERIFY ACTUAL LENGTHS WITH ARCHITECTURAL DRAWINGS. ALL LINEAR DIFFUSERS TO HAVE 1" THICK LINING AND A SUPPLY TAP EVERY 4 FEET OF LINEAR. LINEAR PLENUMS TO BE SIZED ON A MAXIMUM OF 500 FPM VELOCITY.
38. PROVIDE ACCESS PANELS WHEREVER NECESSARY FOR OPERATION AND MAINTENANCE OF ALL RELATED VALVES, VAVS, ETC. ALL CEILING AND WALL ACCESS PANELS ARE TO BE INTEGRATED WITH FINISH WORK AND SHALL BE APPROVED BY ARCHITECT / SITE ENGINEER.
39. ALL KITCHEN / TOILETS SPACES SHALL BE PROVIDED WITH AIR TIGHT PARTITIONS ABOVE FALSE CEILING TO PREVENT MIXING OF EXHAUST AIR WITH A/C RETURN AIR.
40. ALL KITCHEN EXHAUST DUCTS EXTERNAL SURFACES SHALL BE PROVIDED WITH 2 HOURS FIRE RATED MATERIAL. STRENGTHENING SUPPORTS SHALL BE ALSO BE PROVIDED FOR THESE DUCTS AT EVERY 1 METER (MAXIMUM) AND AS RECOMMENDED BY NFPA, BS AND SMACNA. PROVIDE ACCESS DOORS AND CLEAN OUTS.
41. ALL RETURN AIR TRANSFER BOOTS / DUCTS SHALL BE ACOUSTICALLY LINED WITH 1" THICK INSULATION AND SHALL BE SIZED FOR A MAXIMUM VELOCITY OF 500 FPM.
42. THE HVAC CONTRACTOR SHALL INSTALL A PROVISION CONDUIT OF 4"DIA. FOR BMS SYSTEM CABLES ALONG WITH CHILLED WATER PIPING AS REQUIRED.
43. PROVIDE ACCESS PANELS WHEREVER NECESSARY FOR OPERATION AND MAINTENANCE OF ALL RELATED VALVES SUCH ENERGY METERS' DOUBLE REGULATING VALVES & SOLENOID VALVES; VAV'S, BALANCING DAMPERS (MANUAL & MOTORIZED), ETC. ALL CEILING AND WALL ACCESS PANELS ARE TO BE INTEGRATED WITH FINISH WORK AND SHALL BE APPROVED BY THE ARCHITECT / SITE ENGINEER.

GENERAL NOTES

44. ALL DUCTS & PIPES PASSING BUILDING EXPANSION JOINT SHALL BE EQUIPPED WITH FLEXIBLE CONNECTION.
45. ALL FRESH AIR INTAKES SHALL HAVE A BACK DRAFT DAMPER AND A SMOKE SENSOR.
46. THE OUTSIDE AIR DAMPER WILL BE MODULATED BETWEEN THE MINIMUM POSITION AND THE MAXIMUM POSITION NECESSARY TO PROVIDE THE DESIGN VENTILATION RATE TO THE SPACE BASED ON CO2 CONCENTRATIONS AS PROVIDED BY CO2 SENSORS INSTALLED IN THE MOST DENSLY AREAS, AND ON THE RETURN AIR DUCT. A PROPORTIONAL CONTROL APPROACH BE USED TO MODULATE THE DAMPER BASED ON CO2 READINGS BETWEEN A LOWER AND UPPER CONTROL LIMIT. THIS PROPORTIONAL MODULATION WILL ENSURE THE REQUIRED FLOW PER PERSON OF OUTSIDE AIR IS PROVIDED AT ALL TIMES BASED ON ACTUAL OCCUPANCY.
47. ALL EXHAUST FANS SHALL HAVE A BACK DRAFT DAMPER ON THE EXHAUST SIDE.
48. THE CONTRACTOR SHALL RUN A CFD TO VERIFY AIRFLOW AND DISTRIBUTION.
49. ALL FRESH AIR DUCTS TO FAN COIL UNITS SHALL BE SUPPLIED WITH A PREFILTER AND A BAGFILTER.

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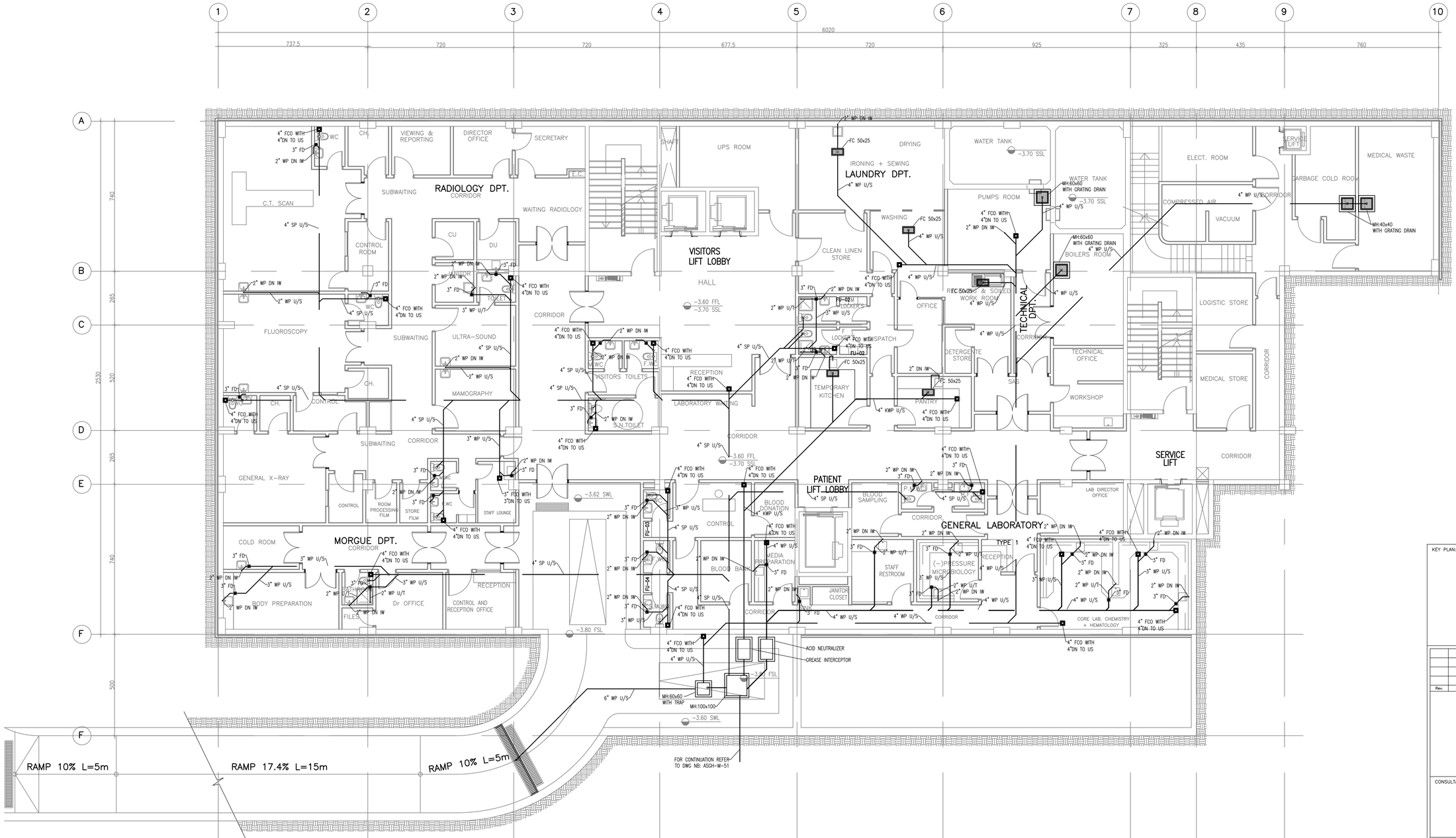
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AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

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GENERAL NOTES 2/2
MECHANICAL

DRAWN BY:	Name G.N.	Date JULY 2026	Signature	FILE:	ASCH-M10
CHECKED BY:	M.T.	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	N.T.S.
DRAWING NO.:	M-10			REVISION	00



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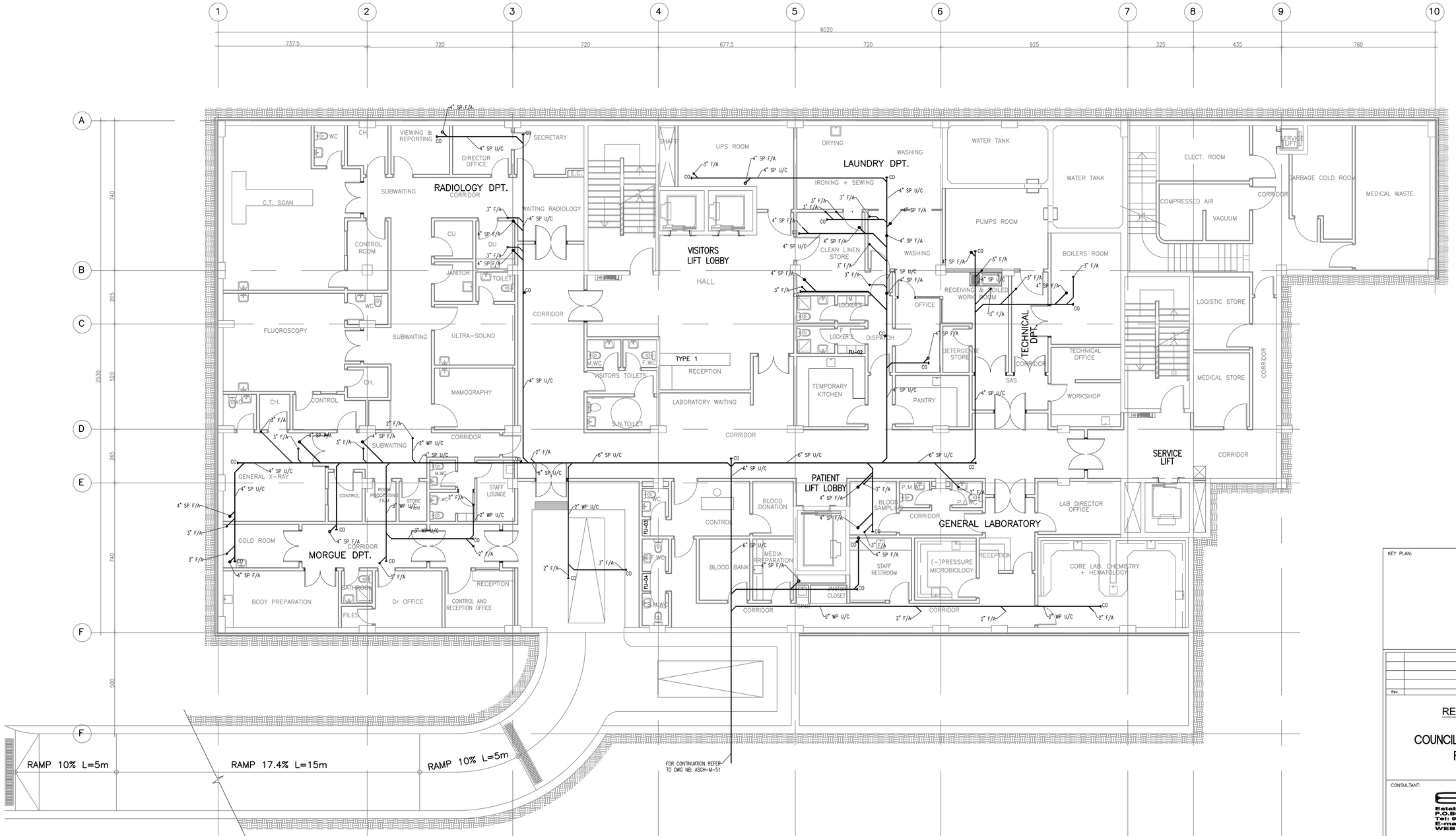
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

FIRST BASEMENT - LOW LEVEL DRAINAGE PLAN

DRAWN BY:	Name E.H.	Date JULY 2026	Signature	FILE:	ASGH-M-11
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M-11			REVISION	00



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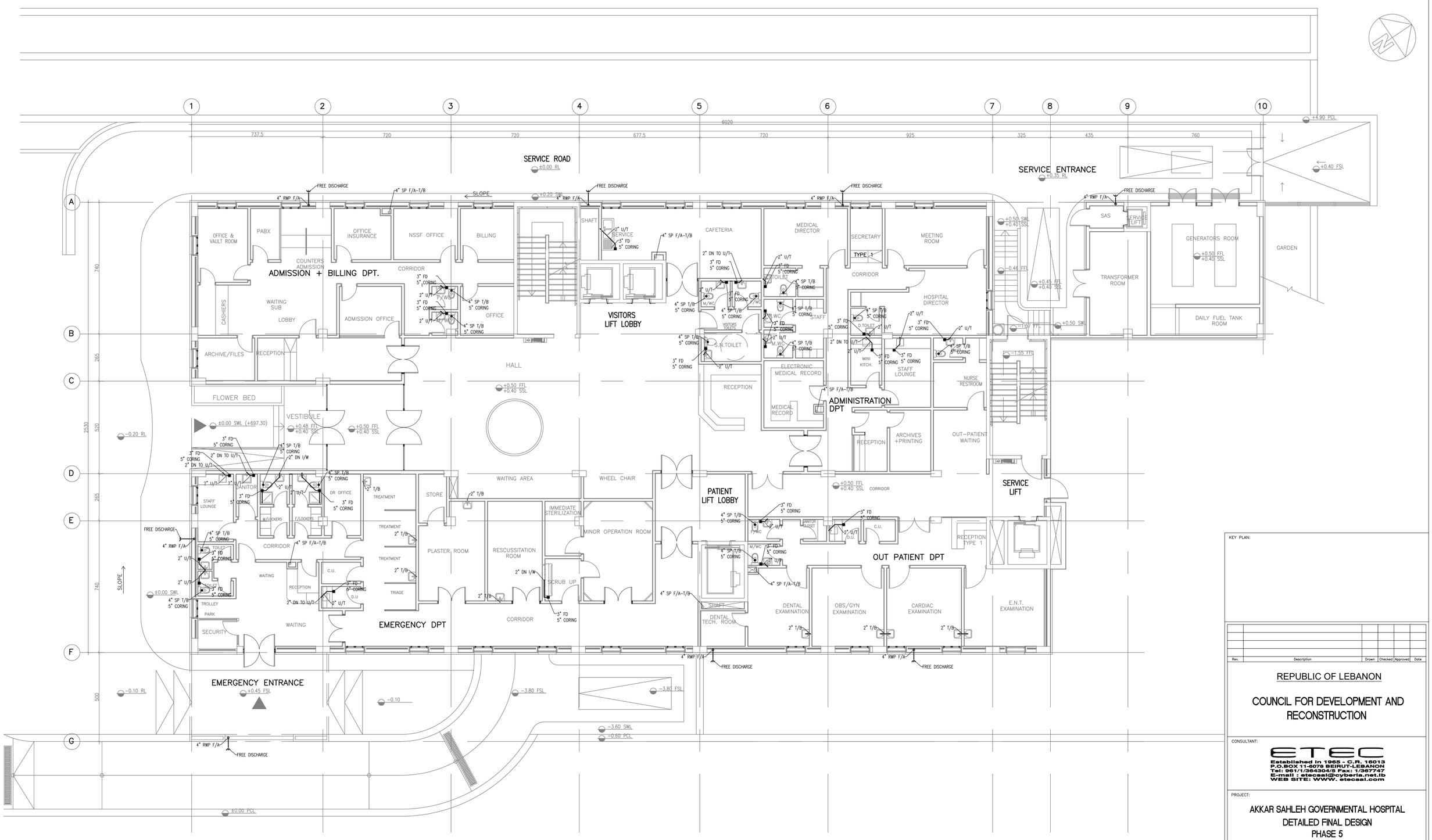
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

FIRST BASEMENT - HIGH LEVEL DRAINAGE PLAN

DRAWN BY:	Name E.H.	Date JULY 2026	Signature	FILE:	ASGH-M-12
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M — 12			REVISION	00



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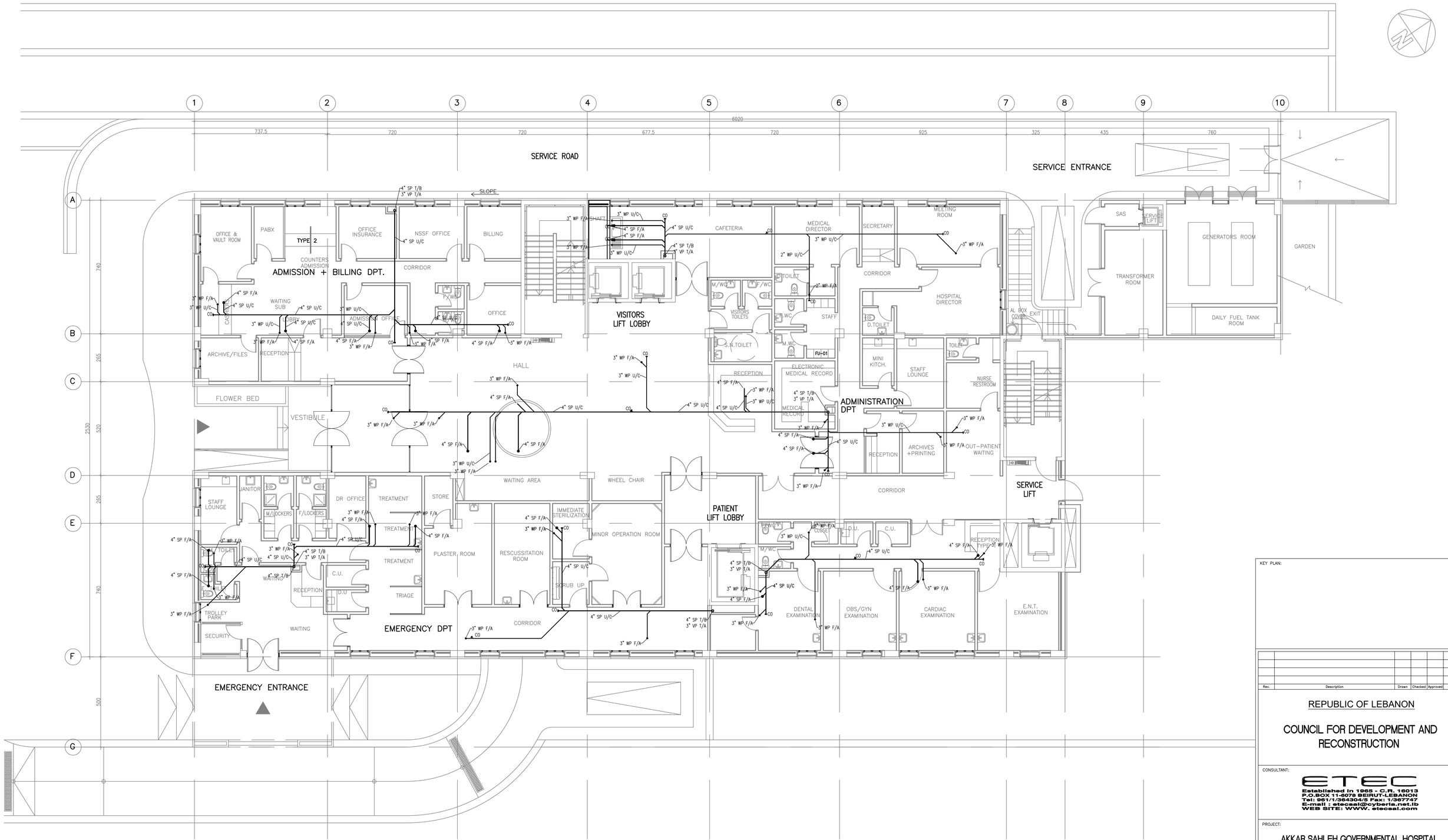
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

GROUND FLOOR - LOW LEVEL DRAINAGE PLAN

	Name	Date	Signature		
DRAWN BY:	E.H.	JULY 2026		FILE:	ASGH-M-13
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M — 13			REVISION	00



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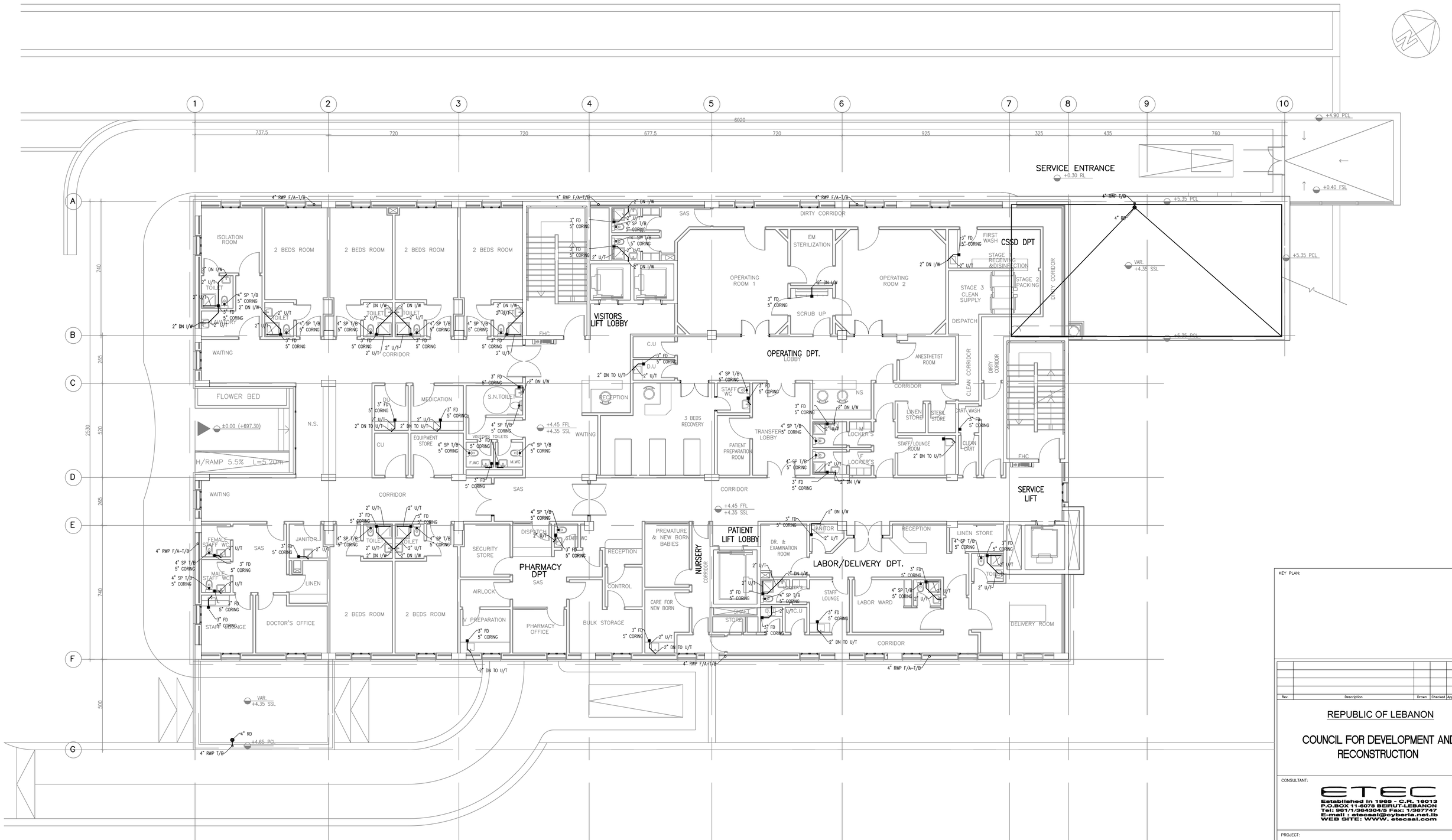
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

GROUND FLOOR - HIGH LEVEL DRAINAGE PLAN

DRAWN BY:	Nome E.H.	Date JULY 2026	Signature	FILE:	ASGH-M-14
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M — 14			REVISION	00



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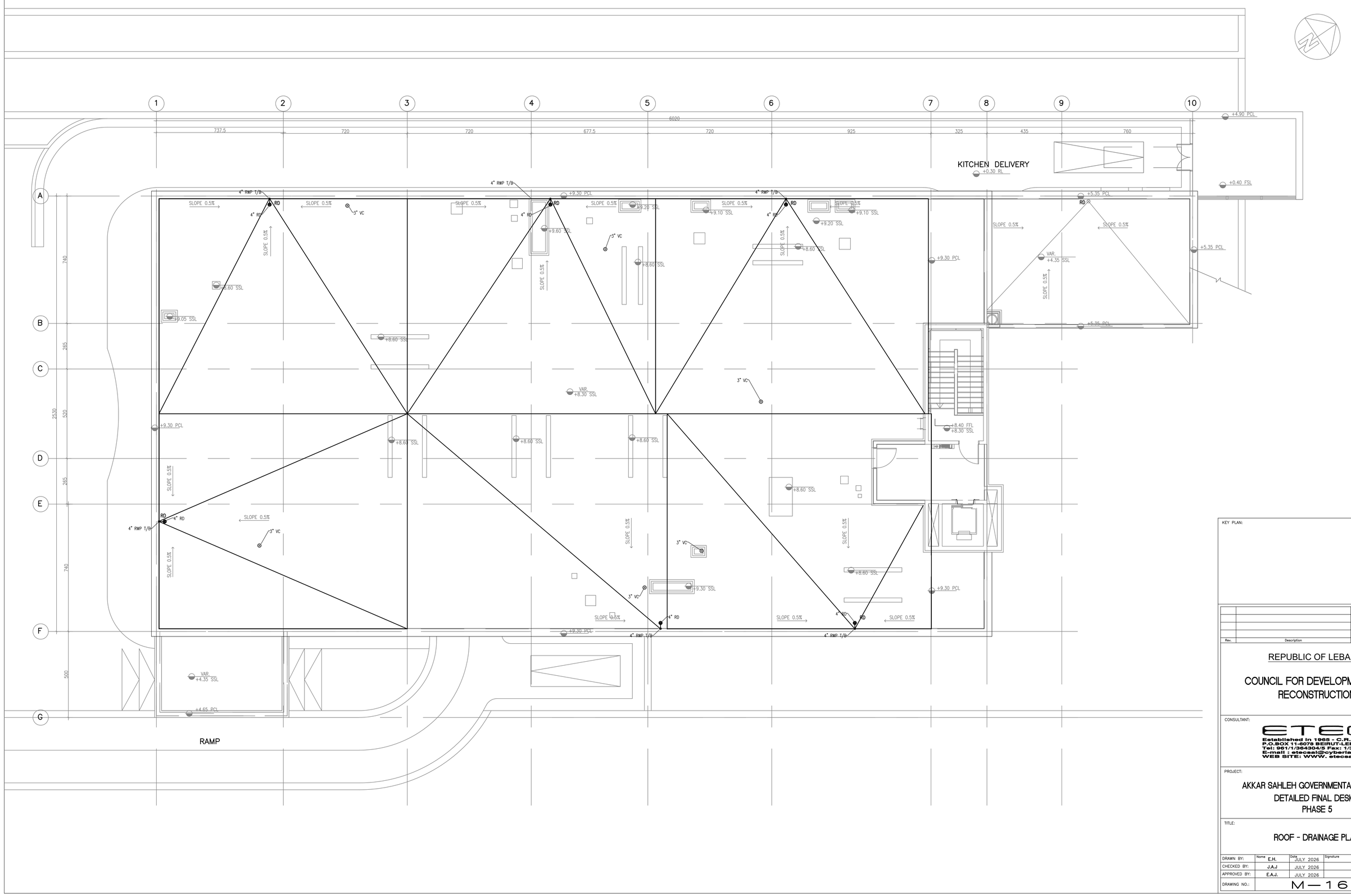
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

FIRST FLOOR - LOW LEVEL DRAINAGE PLAN

DRAWN BY:	Name E.H.	Date JULY 2026	Signature	FILE:	ASGH-M-15
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M — 15			REVISION	00



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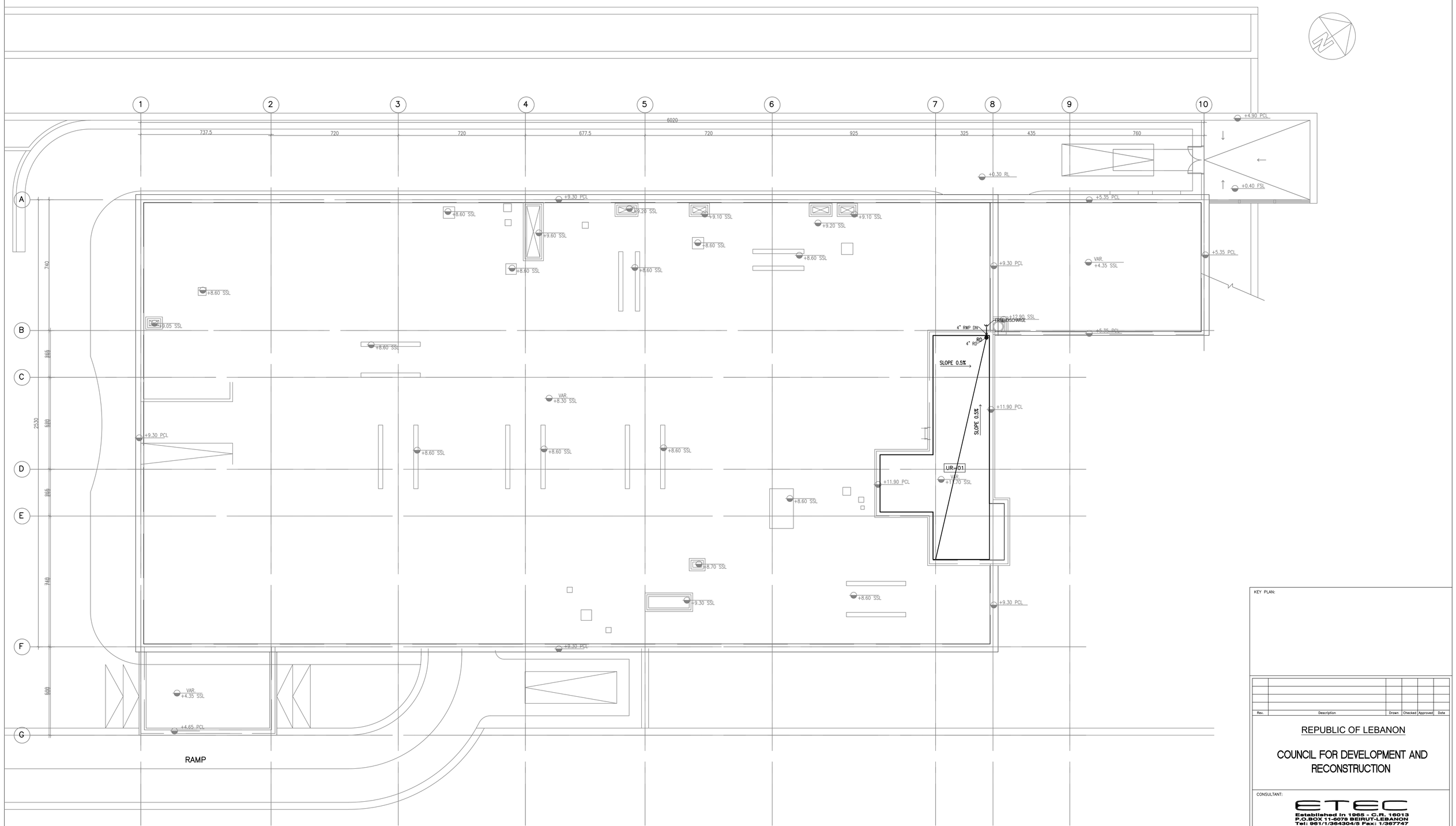
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

ROOF - DRAINAGE PLAN

DRAWN BY:	Name E.H.	Date JULY 2026	Signature	FILE:	ASGH-M-16
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M — 16			REVISION	00



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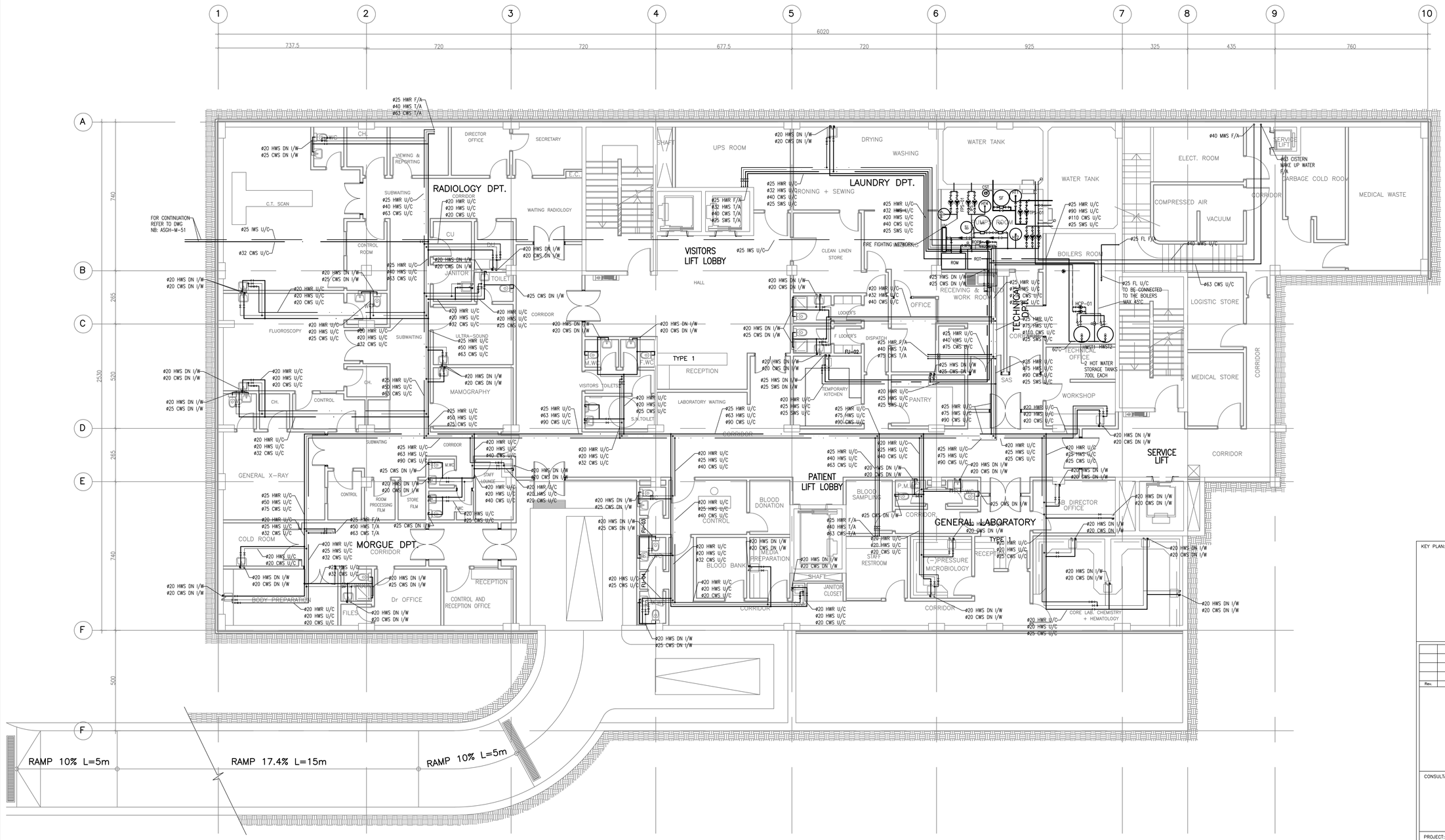
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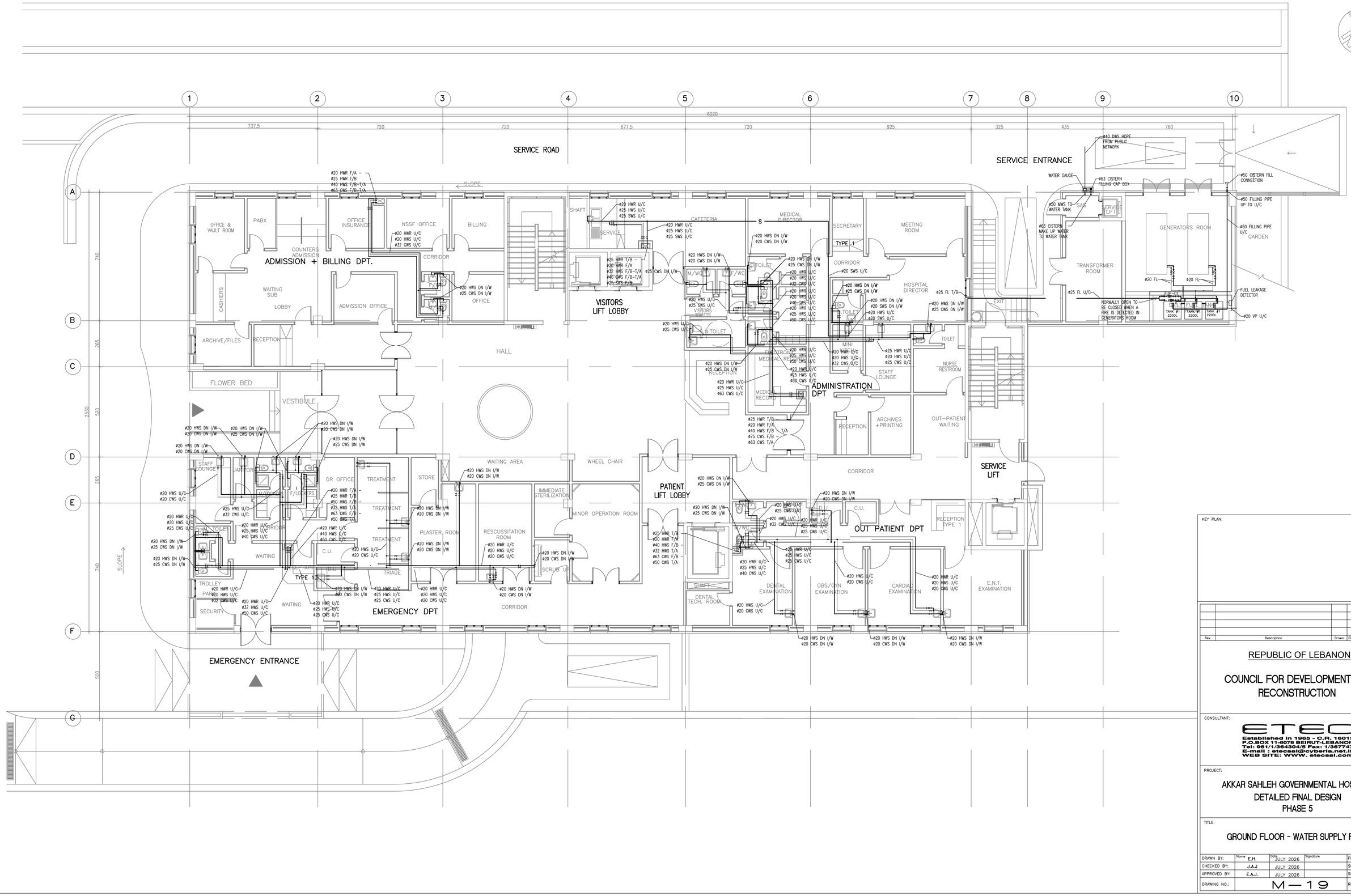
AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

UPPER ROOF - DRAINAGE PLAN

DRAWN BY:	Nome E.H.	Date JULY 2026	Signature	FILE:	ASGH-M-17
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M – 17			REVISION	00


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A
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740
265
520
530
265
740
500
RADIOLOGY DPT.
C.T. SCAN
CONTROL ROOM
SUBWAITING
CORRIDOR
WAITING RADIOLOGY
CU
DR
JANITOR
TOILET
FLUOROSCOPY
ULTRA-SOUND
MAMOGRAPHY
CONTROL
GENERAL X-RAY
ROOM PROCESSING FILM
STORE FILM
STAFF LOUNGE
COLD ROOM
MORGUE DPT.
BODY PREPARATION
FILES
Dr OFFICE
CONTROL AND RECEPTION OFFICE
RECEPTION
DIRECTOR OFFICE
SECRETARY
VIEWING & REPORTING
CH.
E.C.
W.C
SHAFT
UPS ROOM
VISITORS LIFT LOBBY
HALL
LAUNDRY DPT.
DRYING
WASHING
IRONING + SEWING
CLEAN LINEN STORE
FIRE FIGHTING NETWORKS
WATER TANK
BOILERS ROOM
RECEIVING & WORK ROOM
OFFICE
LOCKER'S
F LOCKER'S
DISPATCH
TEMPORARY KITCHEN
PANTRY
SAS
WORKSHOP
TECHNICAL SECTION
TECHNICAL OFFICE
2 HOT WATER STORAGE TANKS 700L EACH
ELECT. ROOM
COMPRESSED AIR
VACUUM
GARBAGE COLD ROOM
MEDICAL WASTE
LOGISTIC STORE
MEDICAL STORE
SERVICE LIFT
TYPE 1
RECEPTION
M.WC
F.WC
VISITORS TOILETS
S.W.TOILET
LABORATORY WAITING
CORRIDOR
PATIENT LIFT LOBBY
BLOOD SAMPLING
P.M.U.
BLOOD DONATION
CONTROL
BLOOD BANK
MEDIA PREPARATION
SHAFT
JANITOR CLOSET
STAFF RESTROOM
(-)PRESSURE MICROBIOLOGY
GENERAL LABORATORY
TYPE 1
RECEPTION
B DIRECTOR OFFICE
CORE LAB. CHEMISTRY + HEMATOLOGY
RAMP 10% L=5m
RAMP 17.4% L=15m
RAMP 10% L=5m
FOR CONTINUATION REFER TO DWG NB: ASGH-M-51
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#63 CWS T/A
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#75 CWS U/C
#90 CWS U/C
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#110 CWS U/C
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#75 CWS T/A
#25 HWS U/C
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#75 CWS T/A
#25 HWR U/C
#75 HWS U/C
#90 CWS U/C
#25 SWS U/C
#40 MWS F/A
#40 CISTERN MAKE UP WATER F/A
#25 FL F/A
#40 MWS U/C
#25 FL U/C TO BE CONNECTED TO THE BOILERS MAX 45C
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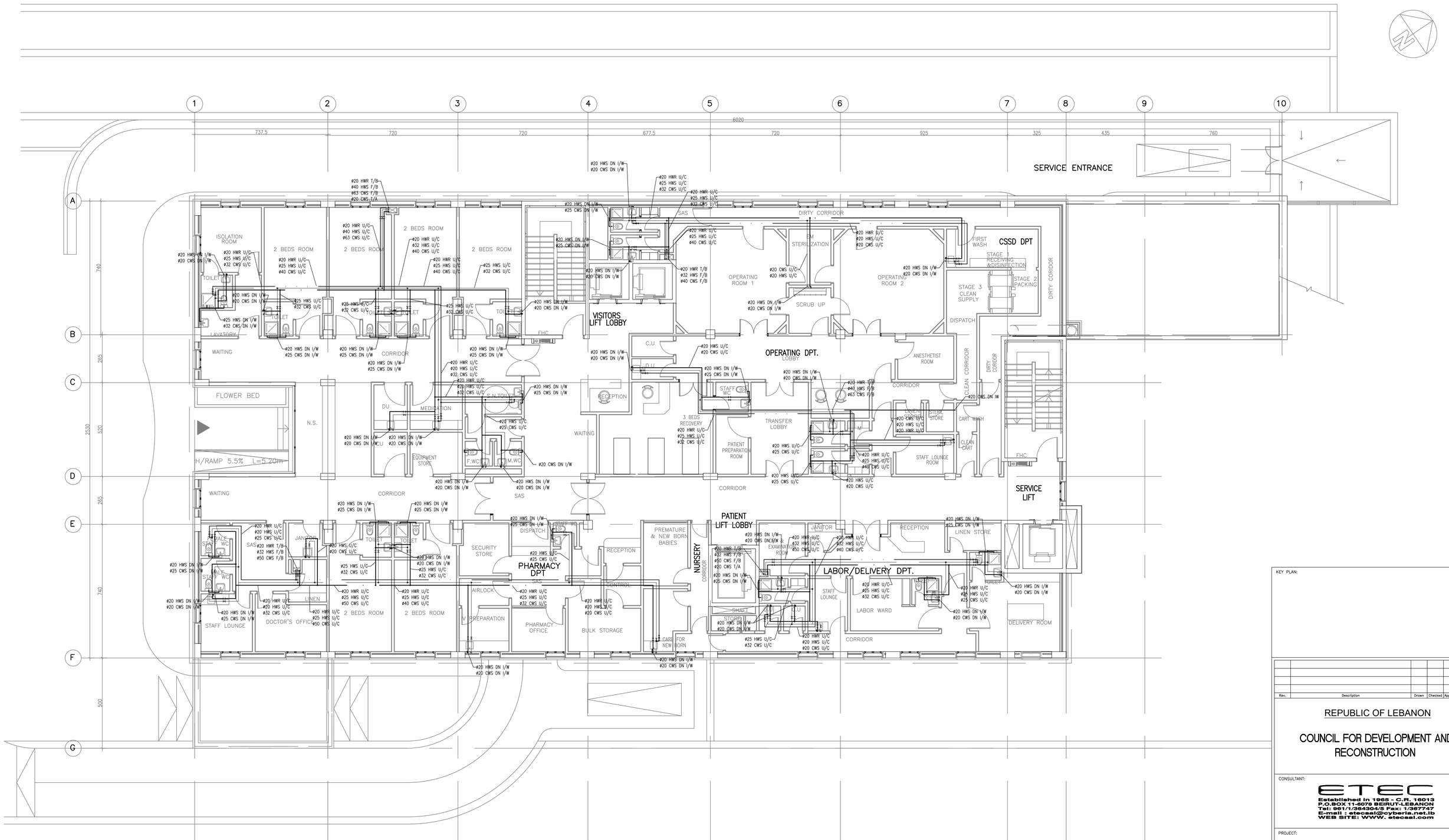
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

GROUND FLOOR - WATER SUPPLY PLAN

	Name	Date	Signature		
DRAWN BY:	E.H.	JULY 2026		FILE:	ASGH-M-19
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M — 19			REVISION	1.0



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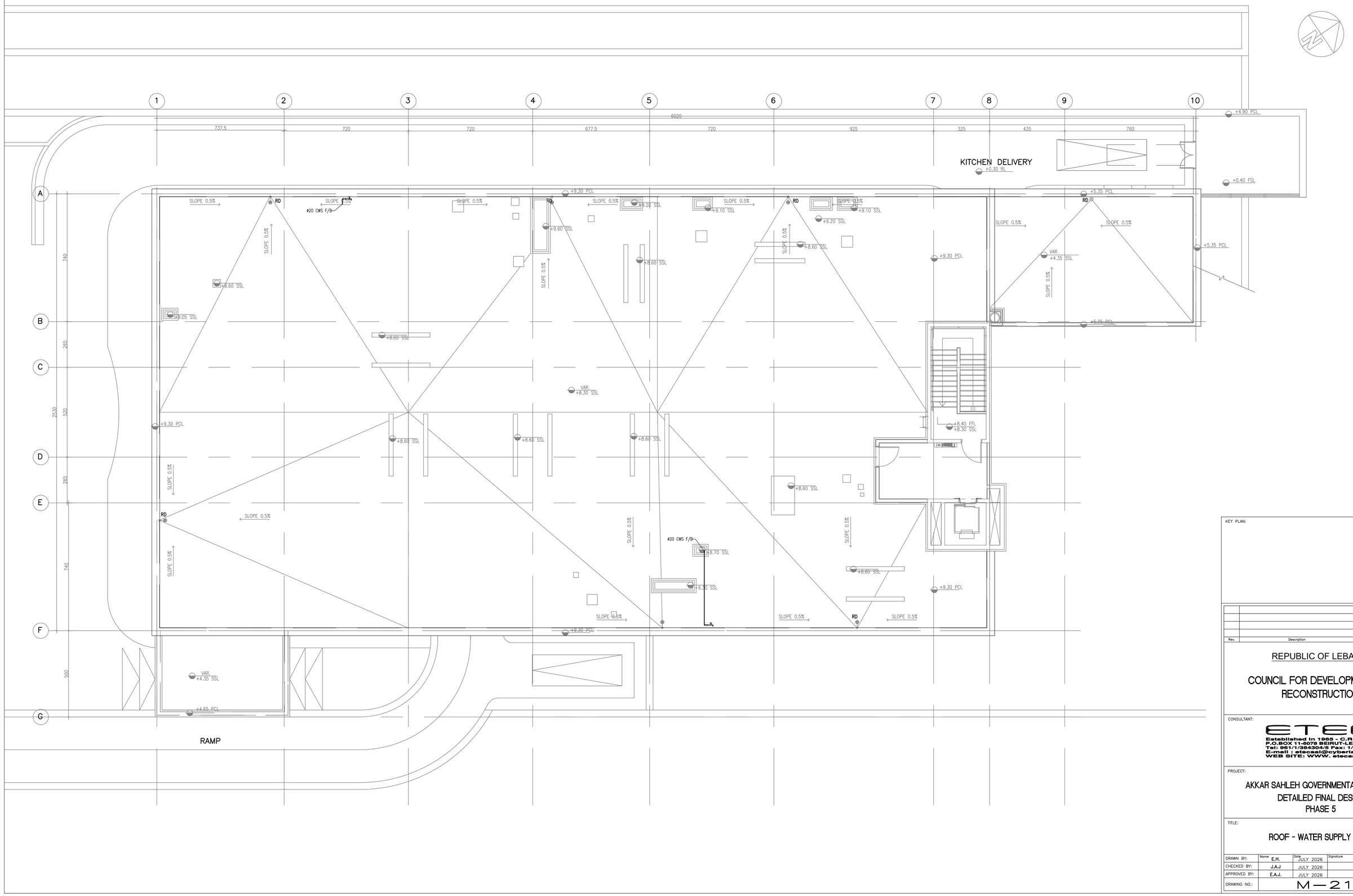
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

FIRST FLOOR - WATER SUPPLY PLAN

DRAWN BY:	Nome E.H.	Date JULY 2026	Signature	FILE:	ASGH-M-20
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M — 20			REVISION	00



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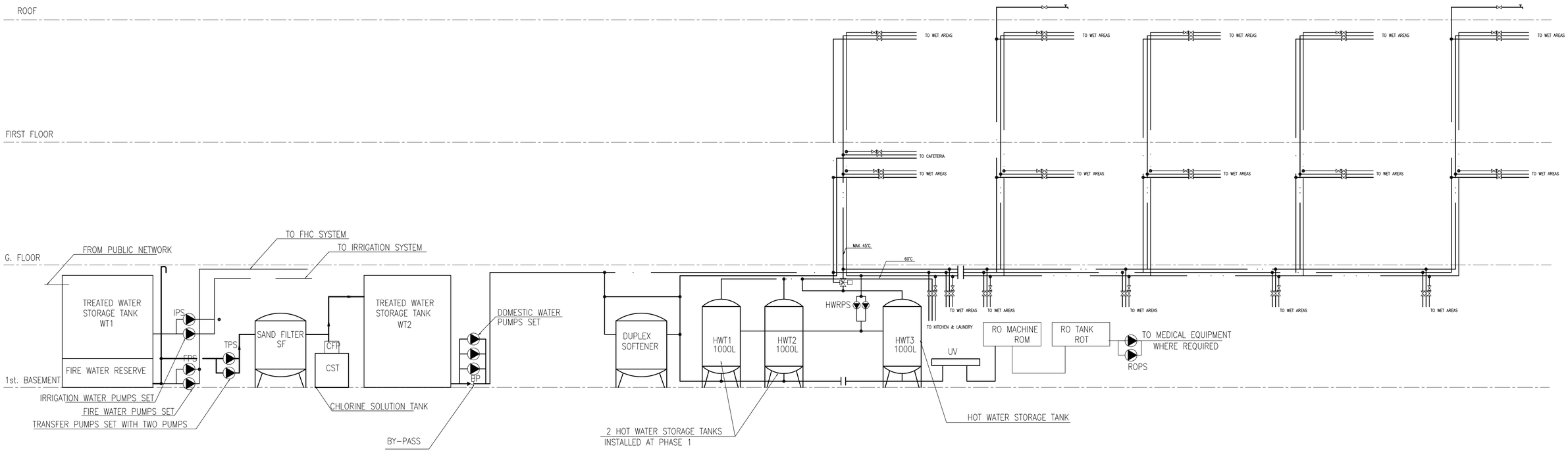
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

ROOF - WATER SUPPLY PLAN

DRAWN BY:	Nome E.H.	Date JULY 2026	Signature	FILE:	ASGH-M-21
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1:100
DRAWING NO.:	M — 21			REVISION	00



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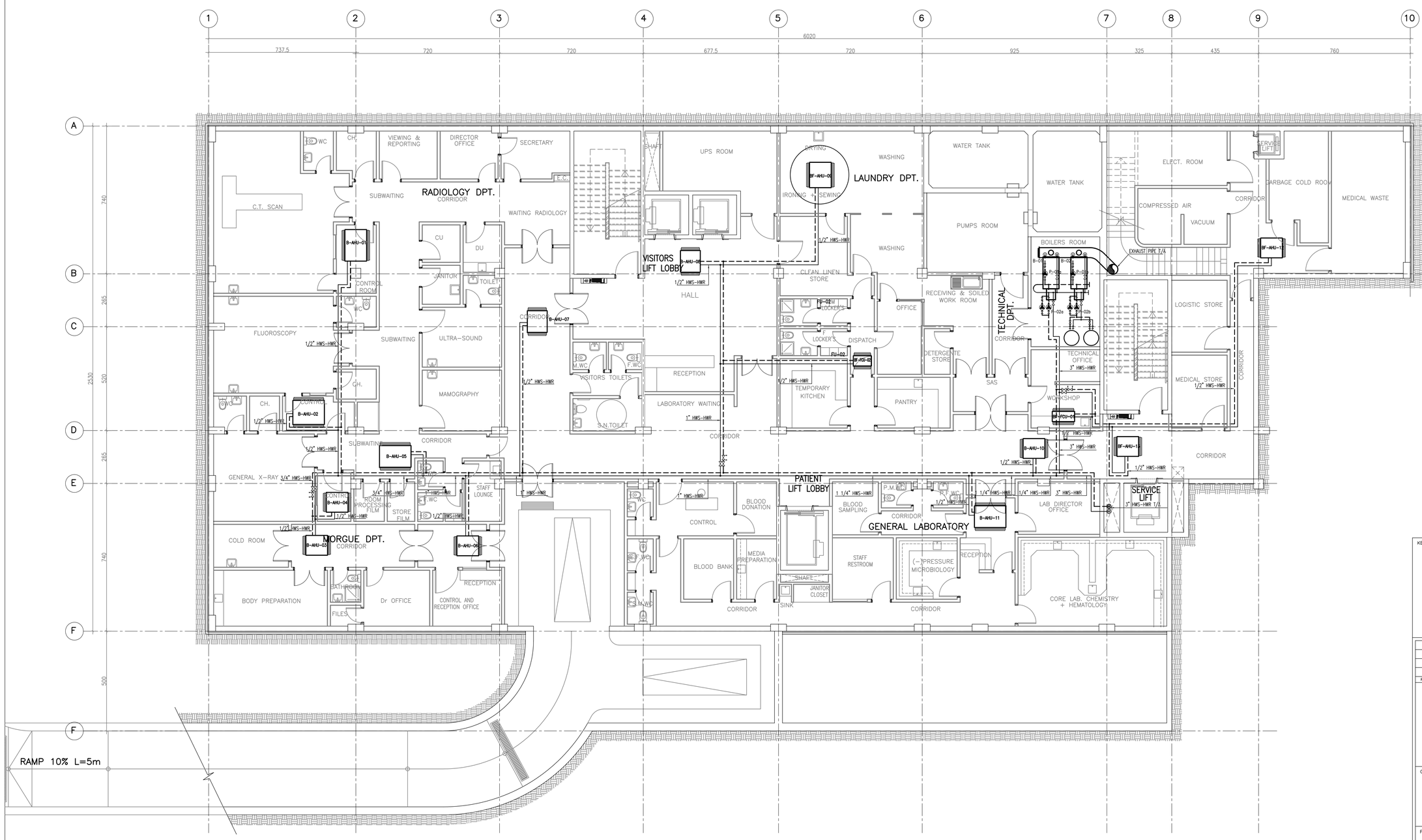
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

SCHEMATIC RISER - WATER SUPPLY PLAN

	Name	Date	Signature		
DRAWN BY:	E.H.	JULY 2026		FILE:	ASGH-M-22
CHECKED BY:	J.A.J	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	N.T.S
DRAWING NO.:	M — 22			REVISION	00



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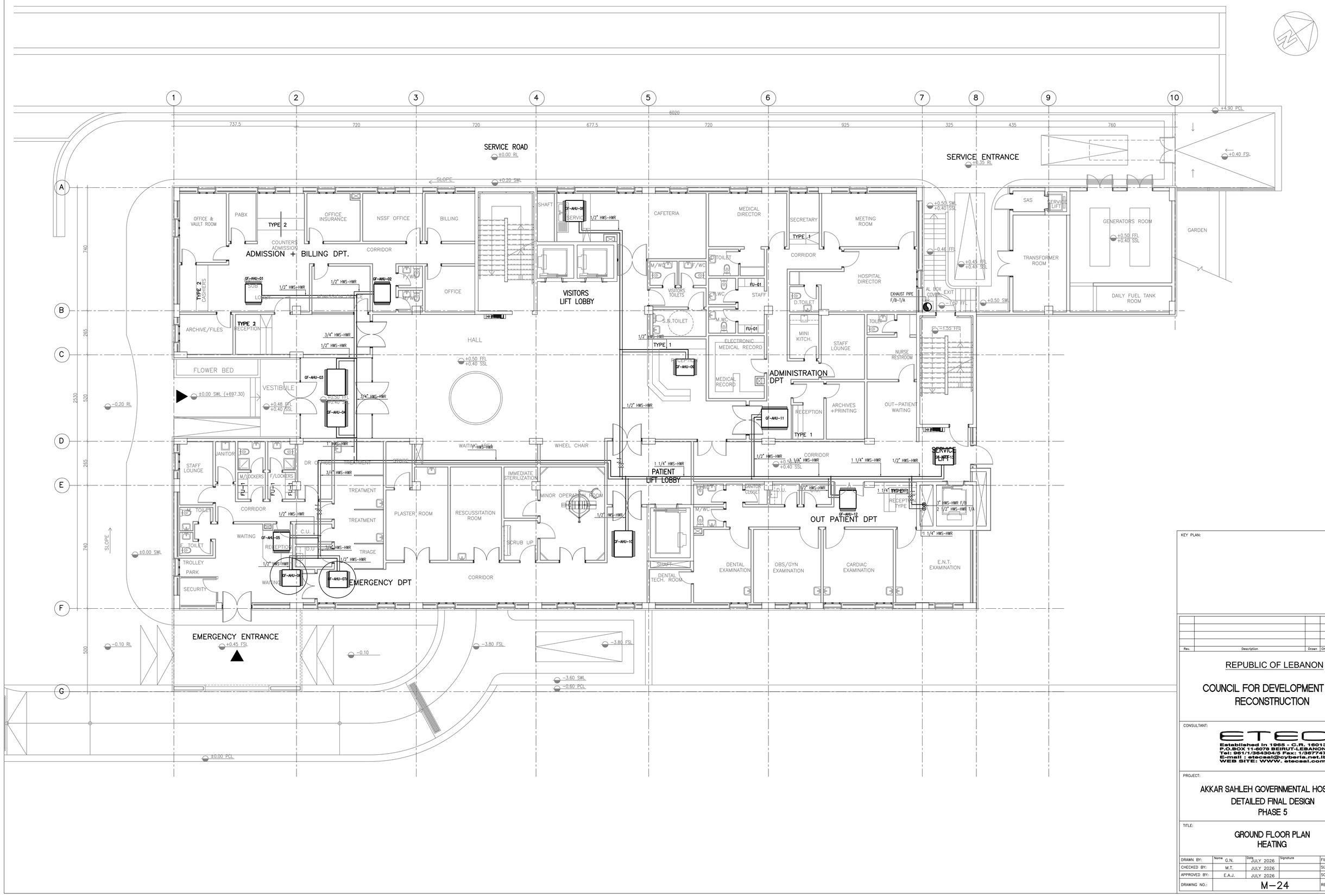
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
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PHASE 5

TITLE:

FIRST BASEMENT PLAN
HEATING

DRAWN BY:	Nome G.N.	Date JULY 2026	Signature	FILE:	ASGH-M23
CHECKED BY:	M.T.	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1/100
DRAWING NO.:	M-23			REVISION	00



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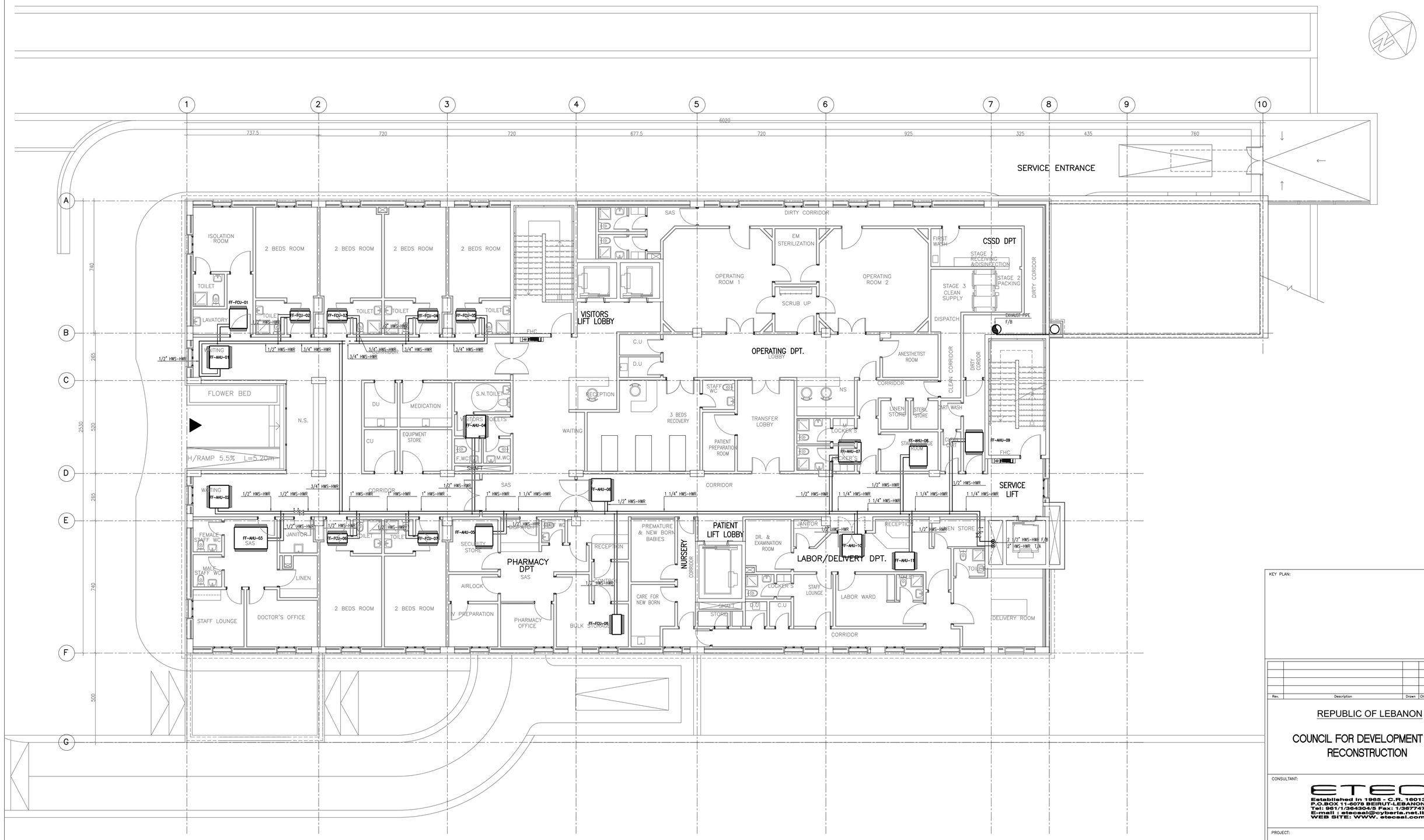
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

GROUND FLOOR PLAN
HEATING

	Name	Date	Signature		
DRAWN BY:	G.N.	JULY 2026		FILE:	ASGH-M24
CHECKED BY:	M.T.	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1/100
DRAWING NO.:	M-24			REVISION	00



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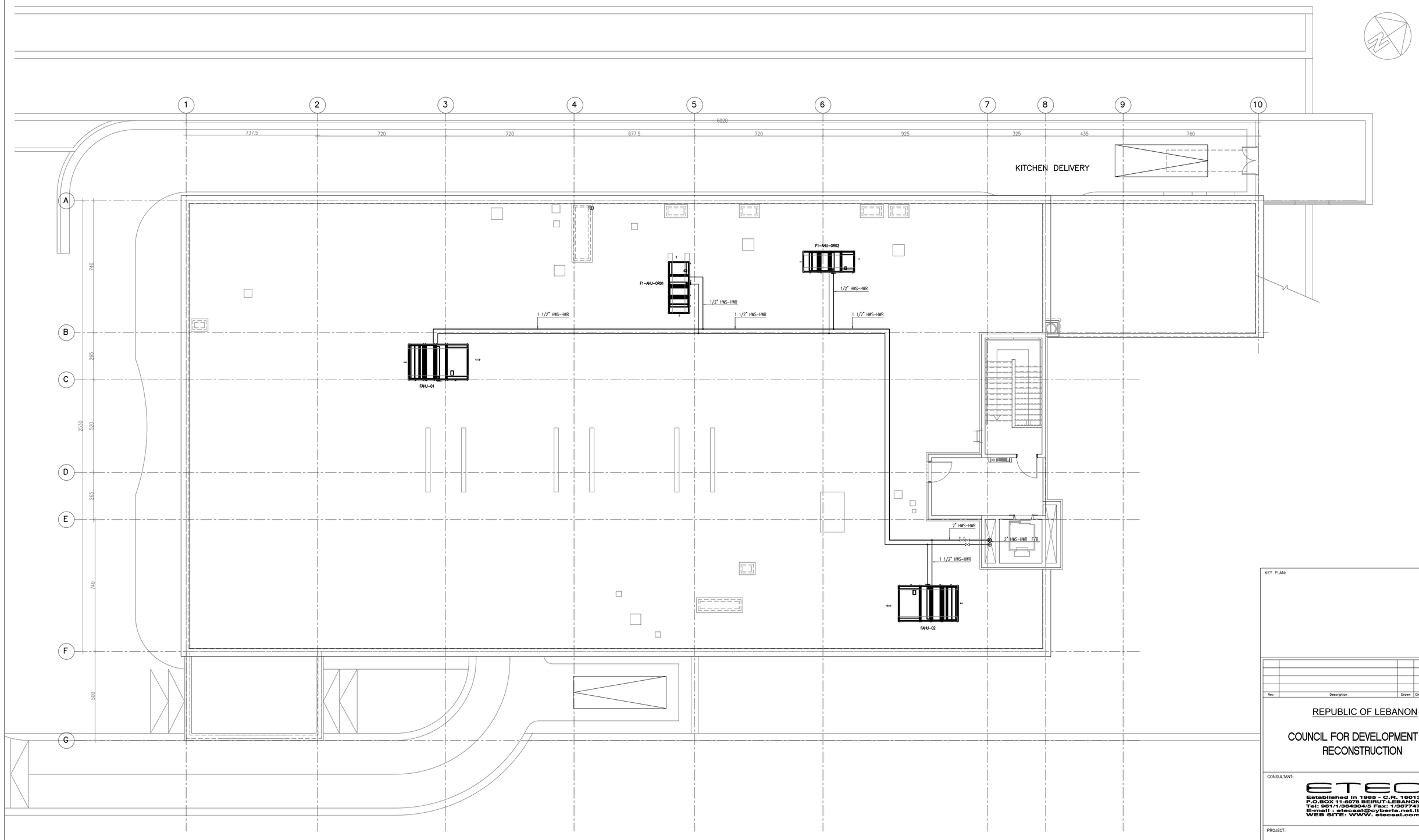
PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

FIRST FLOOR PLAN
HEATING

DRAWN BY:	Nome G.N.	Date JULY 2026	Signature	FILE:	ASGH-M25
CHECKED BY:	M.T.	JULY 2026		SIZE:	A1
APPROVED BY:	E.A.J.	JULY 2026		SCALE	1/100
DRAWING NO.:	M-25			REVISION	00



KEY PLAN:

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REPUBLIC OF LEBANON

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION

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PROJECT:

AKKAR SAHLEH GOVERNMENTAL HOSPITAL
DETAILED FINAL DESIGN
PHASE 5

TITLE:

ROOF PLAN
HEATING

	Name	Date	Signature		
DRAWN BY:	G.N.	JULY 2026		FILE:	ASCH-M26
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