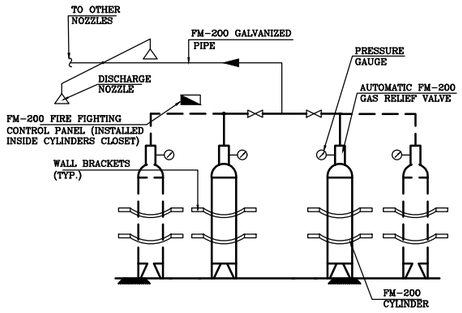
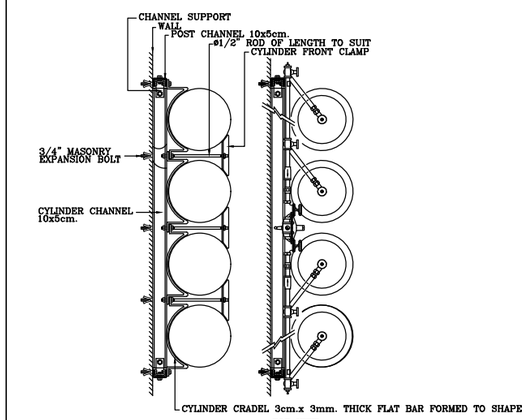
MECHANICAL DRAWINGS

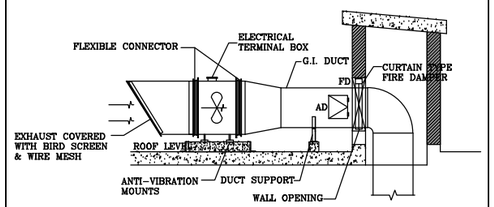


FM-200 CYLINDERS MOUNTING DETAILS

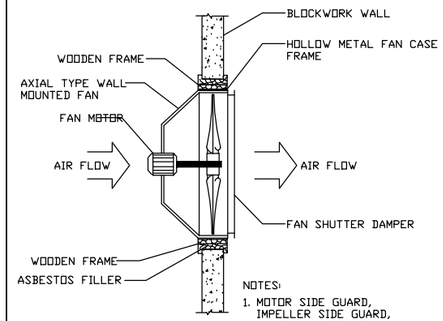


NUMBER OF CYLINDERS TO BE AS SHOWN ON THE DRAWINGS

DETAIL OF CYLINDER SUPPORT



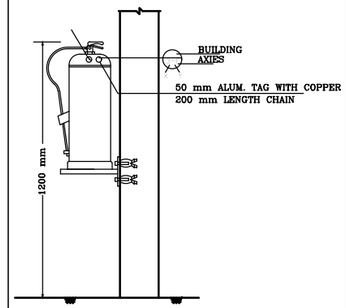
EXHAUST FAN DETAILS



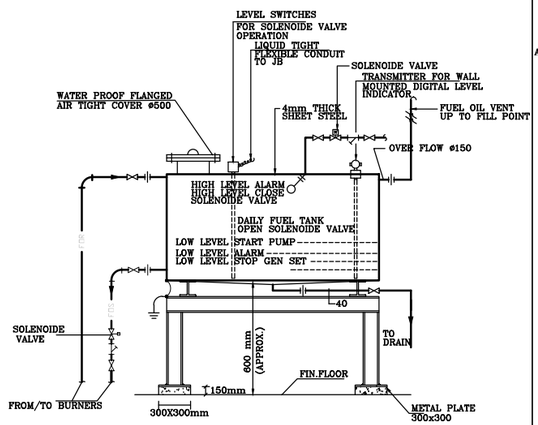
NOTES:
1. MOTOR SIDE GUARD, IMPELLER SIDE GUARD, FAN MOUNTING PLATE,
2. LOUVER SHUTTER, SPEED CONTROLLER.

HIGH EFFICIENCY AXIAL FAN AND WEATHERPROOF PROTECTED.

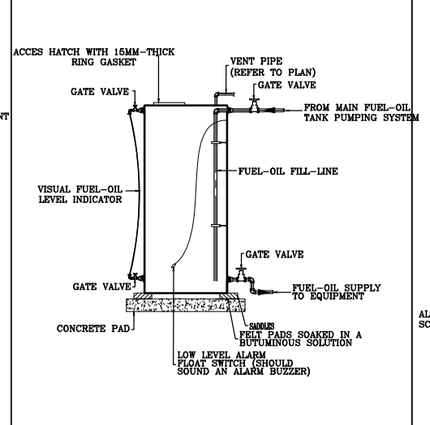
EXHAUST FAN-WALL MOUNTED TYPE



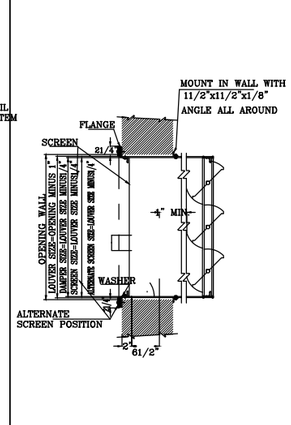
WALL HUNG FIRE EXTINGUISHER



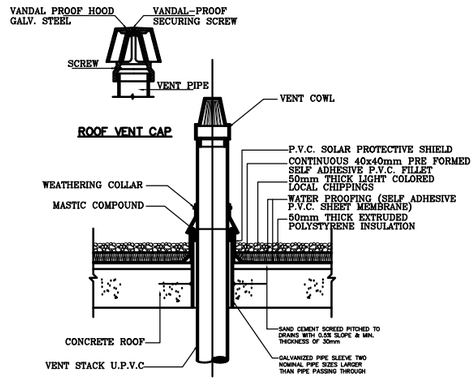
FUEL OIL TANK DETAIL



FUEL OIL TANK HOOK UP DETAIL

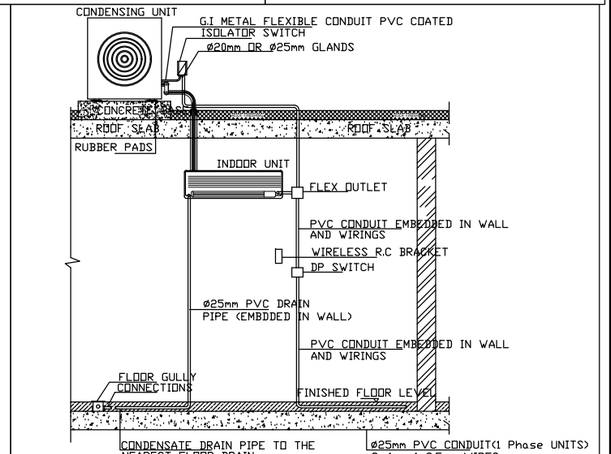


OUTDOOR AIR LOUVER AND SCREEN DETAIL

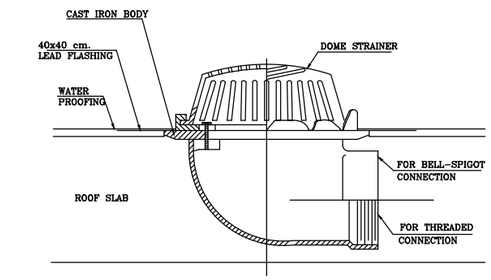


NOTES:
1-FOR WATER PROOFING DETAIL REFER TO ARCHITECTURAL DRAWINGS.
2-FOR ROOF FINISH DETAIL REFER TO ARCHITECTURAL DRAWINGS.

VENT STACK DETAIL

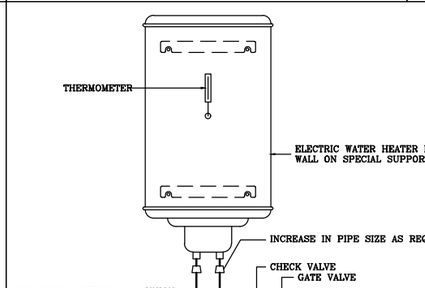


A/C INDOOR & OUTDOOR UNIT INSTALLATION DETAILS WALL MOUNTED TYPE

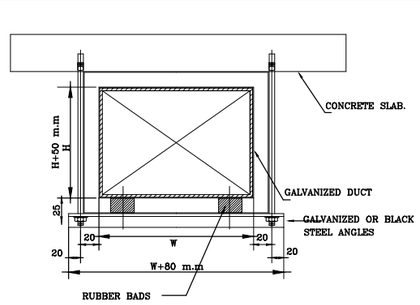


NOTES:-
1-FOR WATER PROOFING DETAIL REFER TO ARCHITECTURAL DRAWINGS.
2-FOR ROOF FINISH DETAIL REFER TO ARCHITECTURAL DRAWINGS.

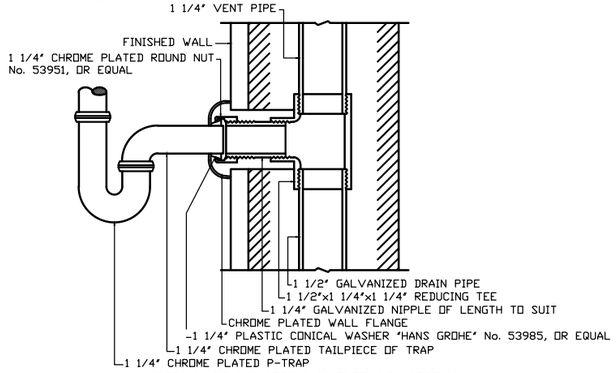
ROOF DRAIN SIDE OUTLET DETAIL



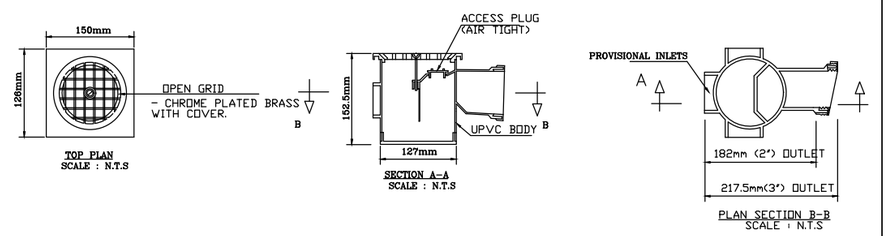
ELECTRIC WATER HEATER HOOK UP DETAIL



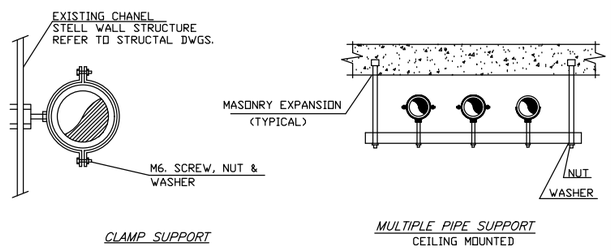
INSULATED DUCT SUPPORTING SYSTEM DETAIL



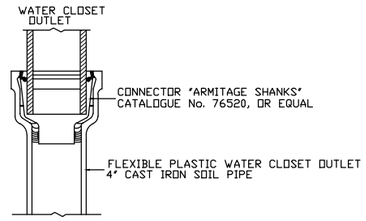
DETAIL OF LAVATORY OUTLET CONNECTION



PVC FLOOR DRAIN DETAIL



PIPES SUPPORT AND HANGERS



DETAIL OF WATER CLOSET OUTLET CONNECTION

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REVISIONS	No.	BY	DATE
1 – XXXXX	Rev1	X.X	X/XX/XX
2 – XXXXX	Rev2	X.X	X/XX/XX
3 – XXXXX	Rev3	X.X	X/XX/XX
4 – XXXXX	Rev4	X.X	X/XX/XX
5 – XXXXX	Rev5	X.X	X/XX/XX
6 – XXXXX	Rev6	X.X	X/XX/XX

LEGEND	NOTES
1 – ----------	1 – XXXXX
2 – ----------	2 – XXXXX
3 – ----------	3 – XXXXX
4 – ----------	4 – XXXXX
5 – ----------	5 – XXXXX
6 – ----------	6 – XXXXX

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PRESIDENTIAL PALACE
GENERAL DIRECTORATE BAABDA, LEBANON
MAIN ELECTRICAL / GENERATOR ROOMS
GENERAL MECHANICAL DETAILS

SCALE:	1/50
DATE:	SEP-2026
DRAWN:	A.S.
CHECKED:	A.MR.
APP'D:	
SHEET SIZE A:	A2
PROJ. No.:	L2026-14
DWG. No.:	M-301
APP'D FOR CONSTRUCTION :	

COMPUTER CODE No.| L2026-14-M301

* CALCULATION NOTES RELATED TO FM200 FIRE SUPPRESSION FOR TRANSFORMER ROOM GF-03:

-ROOM VOLUME IS 75m2 (AREA) * 3m (HEIGHT) =225m3
-FM-200 CONCENTRATION WILL BE 7-9% FOR FIRE SUPPRESSION
-FM-200 GAS DENSITY IS AROUND 0.55KG/m3,THEN THE AMOUNT OF GAS NEEDED WILL BE 225m3 ROOM VOLUME x0.55KG/m3 DENSITY =123.75KG
-THE SELECTED CYLINDERS WILL BE 3*45KG
-AS RECOMMENDED FOR HEIGHT 3m, MAXIMUM COVERAGE AREA WILL BE PER NOZZLE WILL BE 60m2 (AROUND 8.7m DIAMETER)
-MINIMUM NUMBER OF NOZZLES WILL BE 75m2:60m2/NOZZLE =1.25 NOZZLE (SELECTED TWO NOZZLES)

* CALCULATION NOTES RELATED TO FM200 FIRE SUPPRESSION FOR GENERATOR ROOM GF-04:

-ROOM VOLUME IS AROUND 105m2 (AREA) * 5.2m (HEIGHT) =546m3
-FM-200 CONCENTRATION WILL BE 7-9% FOR FIRE SUPPRESSION
-FM-200 GAS DENSITY IS AROUND 0.55KG/m3,THEN THE AMOUNT OF GAS NEEDED WILL BE 546m3 ROOM VOLUME x0.55KG/m3 DENSITY =300.3KG
-THE SELECTED CYLINDERS WILL BE 7*45KG
-AS RECOMMENDED FOR HEIGHT 5.2m, MAXIMUM COVERAGE AREA WILL BE PER NOZZLE WILL BE 45m2 (AROUND 7.5m DIAMETER)
-MINIMUM NUMBER OF NOZZLES WILL BE 105m2:45m2/NOZZLE =2.33 NOZZLES (SELECTED FOUR NOZZLES)

* CALCULATION NOTES RELATED TO VENTILATION SYSTEM FOR TRANSFORMER ROOM GF-03:

-TRANSFORMER CAPACITY IS 1000 KVA + 1600 KVA
-ESTIMATED HEAT DISSIPATION FROM T-1000KVA + T-1600KVA IS 35kW (AROUND 8.5TR)
-ESTIMATED REQUIRED VENTILATION AIR FLOW IS 8.5TR x400CFM/TR =3400 CFM
-ESTIMATED LOUVER'S AREA (m2) = $\frac{\text{AIR FLOW (CFM)}}{\text{VELOCITY(FPM) x10.76FT2/M2 x FREE AREA RATIO}}$

* CALCULATION NOTES RELATED TO VENTILATION SYSTEM FOR GENERATOR ROOM GF-04:

-FOR GENERATOR 500 KVA,THE RECOMMENDED COOLING RADIATOR AIR FLOW IS AROUND 20000 CFM
-FOR GENERATOR 725 KVA,THE RECOMMENDED COOLING RADIATOR AIR FLOW IS AROUND 40000 CFM
-ESTIMATED LOUVER'S AREA (m2) = $\frac{\text{AIR FLOW (CFM)}}{\text{VELOCITY(FPM) x10.76FT2/M2 x FREE AREA RATIO}}$

* CALCULATION NOTES RELATED TO FANS STATIC PRESSURE:

-STATIC PRESSURE CALCULATION IS DONE CONSIDERING THE FOLLOWING:
*60Pa PRESSURE DROP AT AIR LOUVERS
*10Pa PRESSURE DROP AT EXHAUST REGISTERS
*0.65Pa/m DUCTS FRICTION LOSS FOR APPROXIMATE 15m LENGTH
*100% SAFETY FACTOR FOR DUCTS FITTINGS AND SAFETY

-THE REQUIRED STATIC PRESSURE CALCULATION FOR EXF-3400
=3m x0.65Pa/m x2 (100% SAFETY FACTOR) +0Pa (REGISTER) +60Pa (LOUVER) =63.9Pa

* FUEL OIL TANKS VOLUME CALCULATION NOTE:

-ESTIMATED FUEL OIL CONSUMPTION FOR GENERATOR 500KVA IS AROUND 100L/h/GEN.
-REQUIRED FUEL STORAGE FOR 2 DAYS WITH 24h/DAY EMERGENCY RUNNING WILL BE: 100L/h/GEN. x2GEN. x24h/DAY x2DAYS =9600L (AROUND 10m3)
-SELECTED FUEL TANK WILL BE 2.4m x1.2m x2.4m (AROUND 7m3) DUE TO THE CONNECTION TO THE EXISTING 40m3 STORAGE FUEL TANK ALREADY AVAILABLE

* ELECTRIC WATER HEATER (EWH) CALCULATION NOTE

-ELECTRIC WATER HEATER (EWH) CAPACITY IS DONE AS PER INTERNATIONAL PLUMBING CODE:

*23 L/h/LAVATORY
*114 L/h/SHOWER
*0.3 DEMAND FACTOR
*2 HOURS STORAGE CAPACITY

THEREFORE THE MAXIMUM REQUIRED HOT WATER HEATER CAPACITY WILL BE CALCULATED AS FOLLOW:
- 1 LAV: 23L/h/LAV x1LAV x0.3 x2h =13.8L (SAY 15L)
- 1 SHOWER: 114L/h/SHOWER x1SHOWER x0.3 x2h =68.4L (SAY 70L)

THEREFORE THE MAXIMUM REQUIRED HOT WATER HEATER CAPACITY WILL BE: 85L
SELECTED ELECTRIC WATER HEATER TANK WILL BE 100L (EWH-100)

HVAC ABBREVIATIONS	
EXF	EXTRACT FAN
GF	GROUND FLOOR
TR	TON REFRIGERATION
CFM	CUBIC FEET PER MINUTE
IP	INGRESS PROTECTION
FPM	FOOT PER MINUTE
FT2	SQUARE FOOT
KVA	KILOVOLT-AMPERES
Kw	KILOWATT
V	VOLT
Ph	PHASE
Hz	HERTZ
h	Hour
°C	DEGREE CELSIUS
m	METER
m2	SQUARE METER
m3	CUBIC METER
Pa	PASCAL
Kg	KILOGRAM
m/s	METER PER SECOND
ø	PIPE DIAMETER
L	LITER
FT2/M2	SQUARE FEET PER MINUTE
GEN	GENERATOR
IU	INDOOR UNIT
OU	OUTDOOR UNIT
DX	DIRECT EXPANSION
dB(A)	A-WEIGHTED DECIBEL
GEN.	GENERATOR
EWH	ELECTRIC WATER HEATER
L/h/LAV	LITER/HOUR/LAVATORY

OUTDOOR AND INDOOR INVERTER DX SPLIT UNITS (HEAT PUMP)	
NAME	IU(DX)/OU(DX)-2.0
QUANTITY	2
TOTAL COOLING CAPACITY	2TR
SENSIBLE COOLING LOAD	1.6TR
AIR FLOW	850 CFM
FAN SPEED	LOW/MEDIUM/HIGH/AUTO
MAXIMUM AIR THROW	12m
ROOM DESIGN TEMPERATURE	23°C
OUTDOOR TEMPERATURE	35°C
REFRIGERANT TYPE	R32 OR R410A
SERVING	CONTROL ROOM
TYPE	CEILING SUSPENDED
INPUT POWER	2.45kW (220V/1Ph/50Hz)
RATED CURRENT	9-11 A
COMPRESSOR TYPE	DC INVERTER ROTARY
INDOOR NOISE LEVEL	36-41 dB(A)
AIR FILTER	WASHABLE SYNTHETIC FILTER
MAXIMUM REFRIGERANT PIPE LENGTH	30m
MAXIMUM ELEVATION DIFFERENCE	10m
CONTROLLER	WIRELESS REMOTE CONTROLLER
DEGREE OF PROTECTION	OU:IP68 / IU:IP54

FANS SCHEDULE		
NAME	EXF-3400	EXF-75
QUANTITY	1	1
AIR FLOW	3400 CFM	75 CFM
STATIC PRESSURE	65 Pa	30 Pa
POWER INPUT	0.37kW(230V/1Ph/60Hz)	0.08kW(230V/1Ph/60Hz)
LOCATION	ROOF	TOILET
SERVING AREAS	TRANSFORMER ROOM GF-04	TOILET
FANS TYPES	CENTRIFUGAL FLOOR MOUNTED FAN	WALL MOUNTED FAN
DEGREE OF PROTECTION	IP68	IP54

ELECTRIC WATER HEATER	
NAME	EWH-100
QUANTITY	1
TYPE	HORIZONTAL MOUNTED
CAPACITY	100L
SET TEMPERATURE	65°C
POWER INPUT	1.5kW (230V/1Ph/50Hz)
DEGREE OF PROTECTION	IP54

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3 - XXXXX	Rev3	X.X	X/XX/XX
4 - XXXXX	Rev4	X.X	X/XX/XX
5 - XXXXX	Rev5	X.X	X/XX/XX
6 - XXXXX	Rev6	X.X	X/XX/XX

NOTES
1 - XXXXX
2 - XXXXX
3 - XXXXX
4 - XXXXX
5 - XXXXX
6 - XXXXX

LEGEND
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PRESIDENTIAL PALACE
GENERAL DIRECTORATE BAABDA, LEBANON
MAIN ELECTRICAL / GENERATOR ROOMS
SCHEDULES OF EQUIPMENT AND CALCULATION NOTES

SCALE:	-/--
DATE:	SEP-2026
DRAWN:	A.S.
CHECKED:	A.MR.
APP'D:	
SHEET SIZE A:	4 3 2 1 0
PROJ. No.:	DWG. No.:
L2026-14	M-302
APP'D FOR CONSTRUCTION :	
COMPUTER CODE No.	L2026-14-M302

DRAINAGE AND STORM ABBREVIATIONS	
DN	DOWN
FD	FLOOR DRAIN
HL	HIGH LEVEL
JB	JUNCTION BOX
RVC	ROOF VENT CAP
ST	STORM WATER
SH	SHOWER
VP	VENT PIPE
NO	NUMBER
NOS	NUMBERS
m2	SQUARE METER
UT	UNDER TILES
ø	PIPE DIAMETER

FREE DISCHARGE
ø75,ST,UP
FREE DISCHARGE
ø75,ST,UP
GEN-1 500KVA
GEN-2 500KVA
GEN-3 500KVA
EXISTING-GEN/G4
IN1=2.25
TOP2=4.35
FUEL
GENERATOR ROOM
04 GF
TRANSFORMER ROOM FOR PV PANELS
01 GF
TRANSFORMER ROOM
03 GF
CONTROL ROOM
05 GF
ELECTRICAL ROOM
02 GF
TOILET
06 GF

EWC-01	1 NO
LAV-01	1 NO
SH-01	1 NO

EXISTING SANITARY FIXTURES SHALL BE REMOVED

ø50,VP,UP
ø50,VP
ø50,CDP,UP TO HL
JB-01
ø110,UT
ø110,UT,TO BE CONNECTED TO EXISTING SEWAGE NETWORK
FD-01
ø50,UT
ø50,VP UP TO HL
ø50,CDP TO BE CONNECTED TO THE NEAREST PIPE

NOTES
1 – XXXXX
2 – XXXXX
3 – XXXXX
4 – XXXXX
5 – XXXXX
6 – XXXXX

LEGEND
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5 ----------
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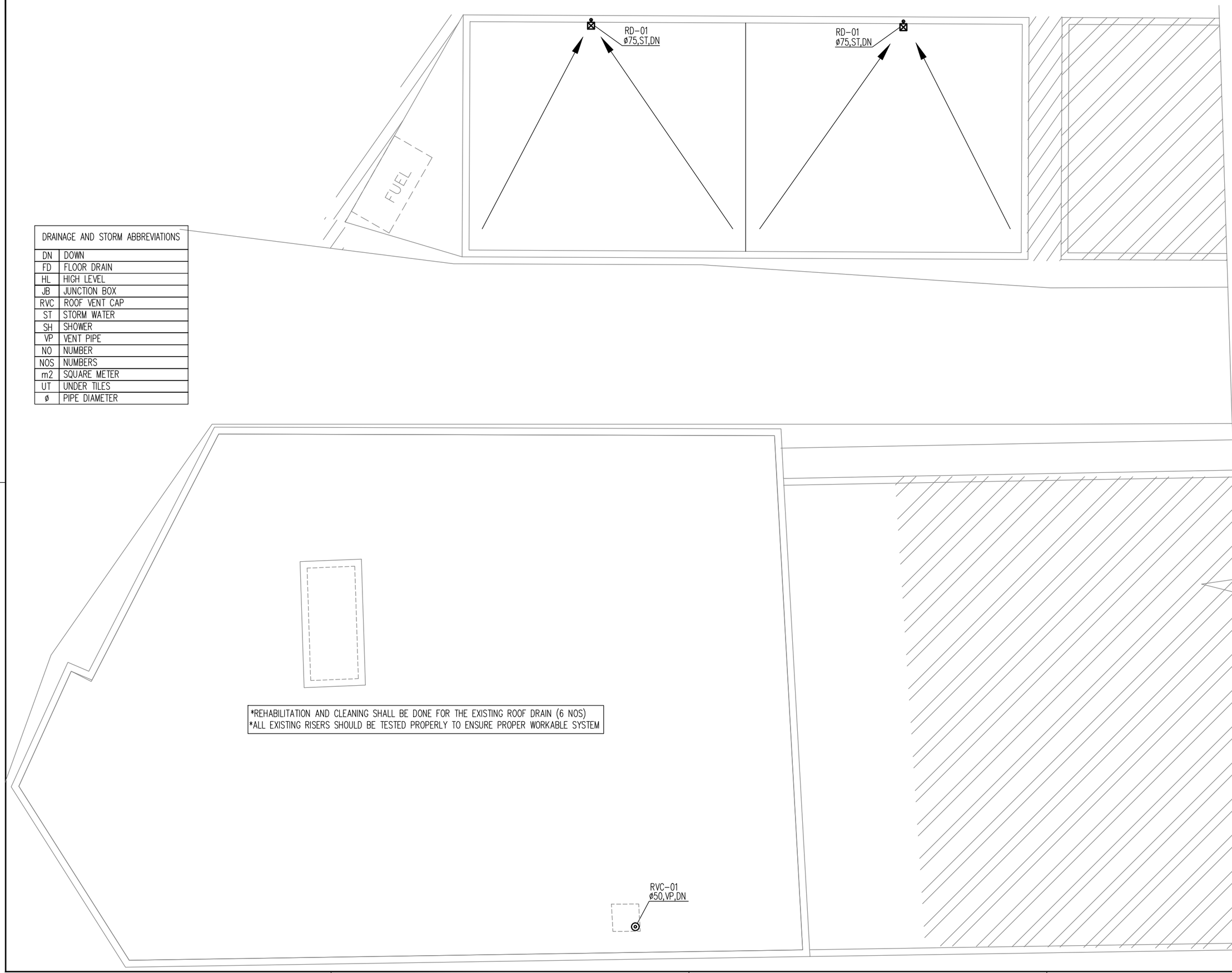
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3 – XXXXX	Rev3	X.X	X/XX/XX
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6 – XXXXX	Rev6	X.X	X/XX/XX

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PRESIDENTIAL PALACE
GENERAL DIRECTORATE BAABDA, LEBANON
MAIN ELECTRICAL / GENERATOR ROOMS
GROUND FLOOR PLAN-DRAINAGE AND STORM LAYOUT

SCALE:	1/50
DATE:	SEP-2026
DRAWN:	A.S.
CHECKED:	A.MR.
APP'D:	
SHEET SIZE A:	A1 / 2 / 1 / 0
PROJ. No.:	DWG. No.:
L2026-14	M-303
APP'D FOR CONSTRUCTION :	
COMPUTER CODE No.: L2026-14-M303	



DRAINAGE AND STORM ABBREVIATIONS	
DN	DOWN
FD	FLOOR DRAIN
HL	HIGH LEVEL
JB	JUNCTION BOX
RVC	ROOF VENT CAP
ST	STORM WATER
SH	SHOWER
VP	VENT PIPE
NO	NUMBER
NOS	NUMBERS
m2	SQUARE METER
UT	UNDER TILES
ø	PIPE DIAMETER

*REHABILITATION AND CLEANING SHALL BE DONE FOR THE EXISTING ROOF DRAIN (6 NOS)
*ALL EXISTING RISERS SHOULD BE TESTED PROPERLY TO ENSURE PROPER WORKABLE SYSTEM

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LEGEND
1 ----------
2 ----------
3 ----------
4 ----------
5 ----------
6 ----------

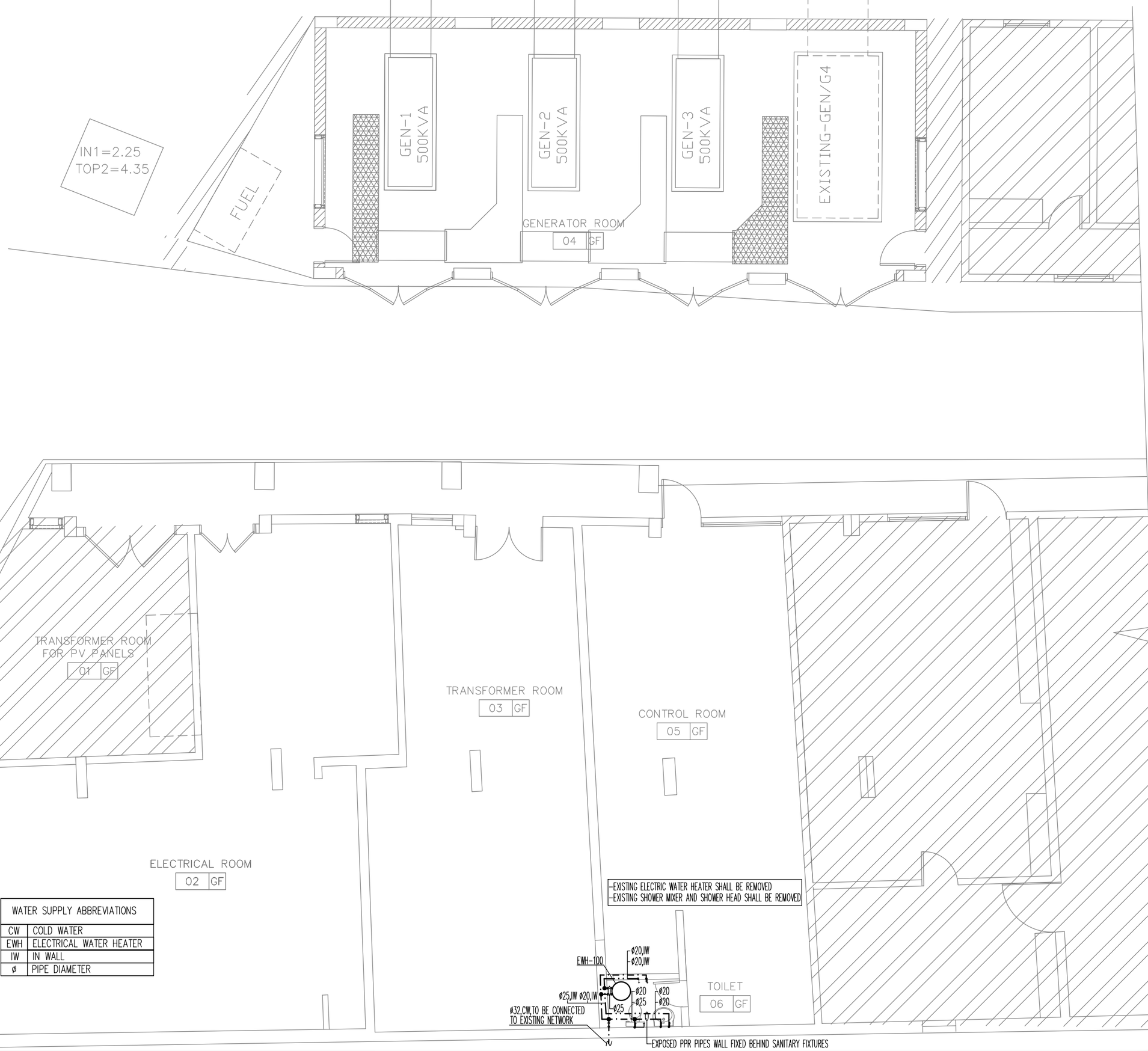
REVISIONS	No.	BY	DATE
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2 – XXXXX	Rev2	X.X	X/XX/XX
3 – XXXXX	Rev3	X.X	X/XX/XX
4 – XXXXX	Rev4	X.X	X/XX/XX
5 – XXXXX	Rev5	X.X	X/XX/XX
6 – XXXXX	Rev6	X.X	X/XX/XX

NOTES
1 – XXXXX
2 – XXXXX
3 – XXXXX
4 – XXXXX
5 – XXXXX
6 – XXXXX

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PRESIDENTIAL PALACE
GENERAL DIRECTORATE BAABDA, LEBANON
MAIN ELECTRICAL / GENERATOR ROOMS
ROOF FLOOR PLAN-DRAINAGE AND STORM LAYOUT

SCALE:	1/50
DATE:	SEP-2026
DRAWN:	A.S.
CHECKED:	A.MR.
APP'D:	
SHEET SIZE A:	A1
PROJ. No.:	DWG. No.:
L2026-14	M-304
APP'D FOR CONSTRUCTION :	
COMPUTER CODE No.	L2026-14-M304



WATER SUPPLY ABBREVIATIONS	
CW	COLD WATER
EWH	ELECTRICAL WATER HEATER
IW	IN WALL
ø	PIPE DIAMETER

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1 – XXXXX	Rev1	X.X	X/XX/XX
2 – XXXXX	Rev2	X.X	X/XX/XX
3 – XXXXX	Rev3	X.X	X/XX/XX
4 – XXXXX	Rev4	X.X	X/XX/XX
5 – XXXXX	Rev5	X.X	X/XX/XX
6 – XXXXX	Rev6	X.X	X/XX/XX

LEGEND

1 – ----------

2 – ----------

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NOTES

1 – XXXXX

2 – XXXXX

3 – XXXXX

4 – XXXXX

5 – XXXXX

6 – XXXXX

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SUDAN – YEMEN – SUDAN – ALBANIA – MALDIVES

PRESIDENTIAL PALACE

GENERAL DIRECTORATE BAABDA, LEBANON

MAIN ELECTRICAL / GENERATOR ROOMS

GROUND FLOOR PLAN -WATER SUPPLY LAYOUT

SCALE:	1/50
DATE:	SEP–2026
DRAWN:	A.S.
CHECKED:	A.MR.
APP'D:	
SHEET SIZE A:	A1
PROJ. No.:	DWG. No.:
L2026–14	M–305
APP'D FOR CONSTRUCTION :	

COMPUTER CODE No.: L2026-14-M305

FIRE FIGHTING ABBREVIATIONS	
CO2	CARBON DIOXIDE
FM-200	HEPTAFLUOROPROPANE
KG	KILOGRAM
#	NUMBER/NUMBERS
NO	NUMBER
NOS	NUMBERS
m2	SQUARE METER
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
PFE	PORTABLE FIRE EXTINGUISHERS

FM200 Cylinders 7*45kg,Automatic Extinguishers
Fire Suppression System Complete with all Required Accessories

GEN-1 500KVA

GEN-2 500KVA

GEN-3 500KVA

EXISTING-GEN/G4

Seamless Black Steel Pipes
Schedule 40, ASTM A53/A106

FM200 Nozzles 360°
Ceiling-Mounted Nozzles

GENERATOR ROOM
04 GF

IN1=2.25
TOP2=4.35

FUEL

PFE-6L (6LITERS) Foam Type
Portable Fire Extinguisher
Maximum Coverage Area 200m2

PFE-6KG:Dry Chemical Powder
Portable Fire Extinguisher Class ABC
Maximum Coverage Area 200m2

PFE-5KG CO2 Type
Portable Fire Extinguishers
Maximum Coverage Area 200m2

FM200 Cylinders 3*45kg,Automatic Extinguishers
Fire Suppression System Complete with all Required Accessories

Fire Pipes,UP to HL

PFE-6KG:Dry Chemical Powder
Portable Fire Extinguisher Class ABC
Maximum Coverage Area 200m2

Panel Board Interfaced with Heat Detector and Fire Alarm Control Panel
(All Heat Detectors and Indicators will be shown in Fire Alarm Electrical Layout)

TRANSFORMER ROOM
FOR PV PANELS
01 GF

CONTROL ROOM
05 GF

TRANSFORMER ROOM
03 GF

ELECTRICAL ROOM
02 GF

TOILET
06 GF

NOTES
1 – XXXXX
2 – XXXXX
3 – XXXXX
4 – XXXXX
5 – XXXXX
6 – XXXXX

LEGEND
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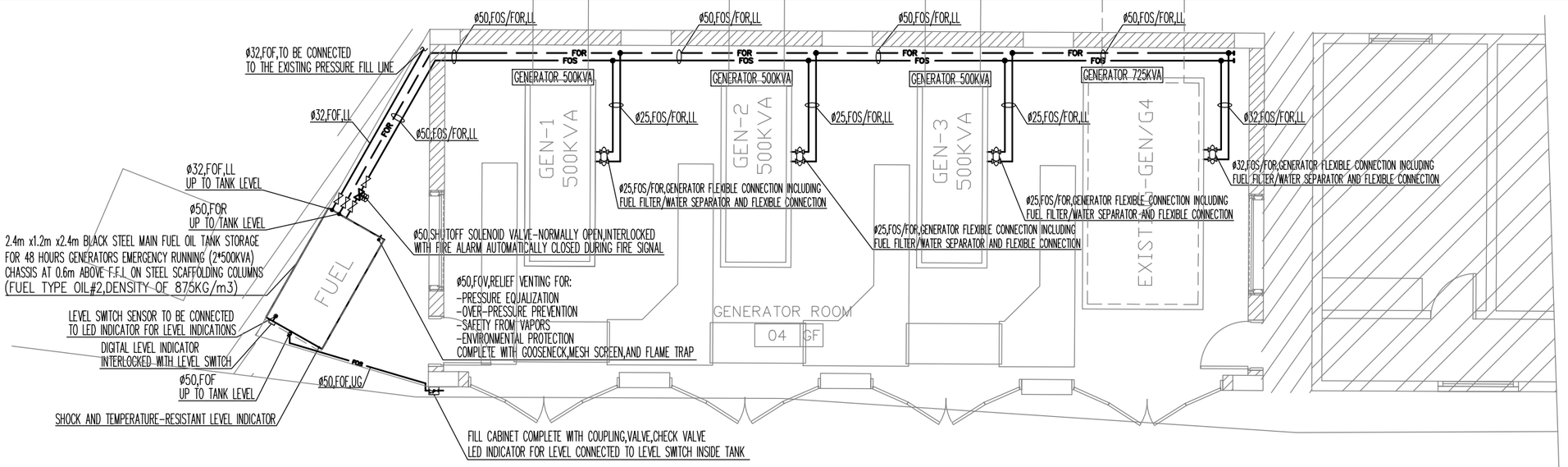
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5 – XXXXX	Rev5	X.X	X/XX/XX
6 – XXXXX	Rev6	X.X	X/XX/XX

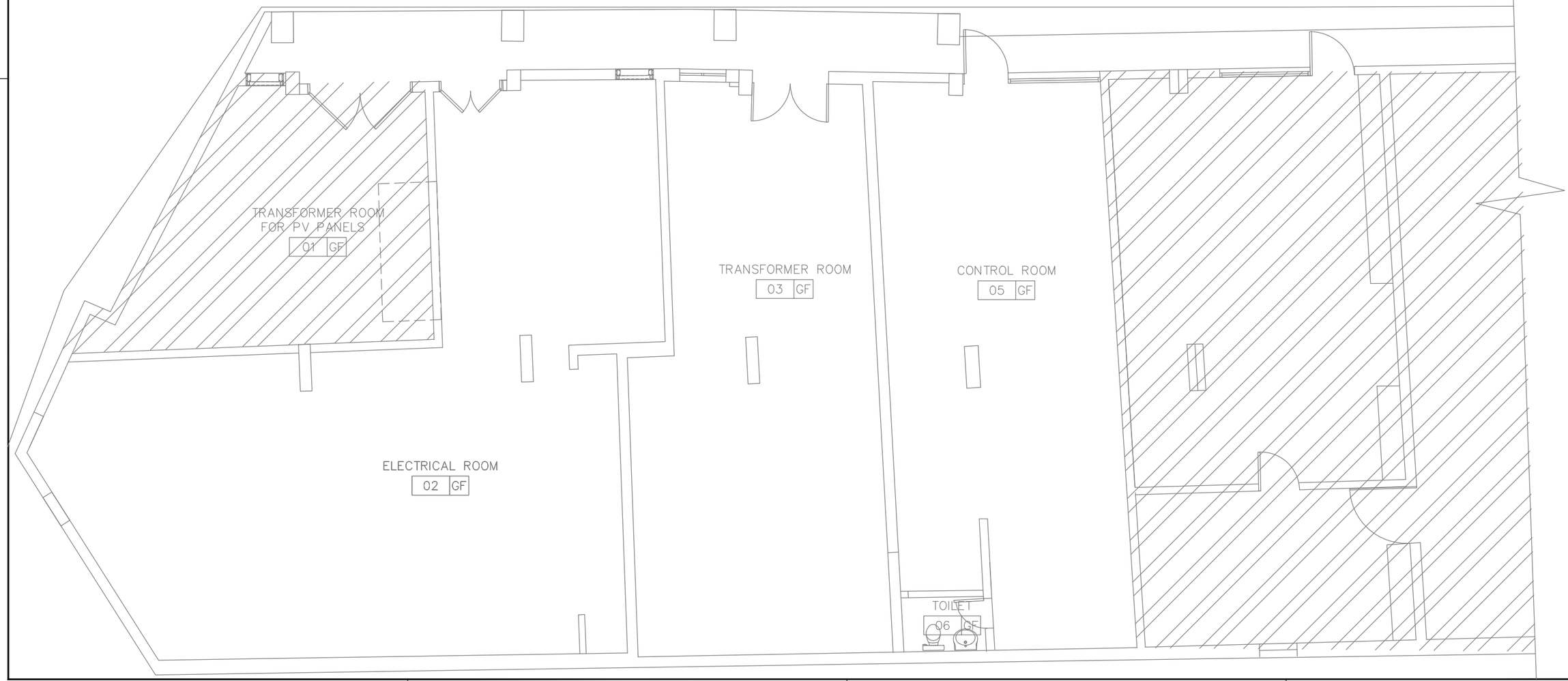
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PRESIDENTIAL PALACE
GENERAL DIRECTORATE BAABDA, LEBANON
MAIN ELECTRICAL / GENERATOR ROOMS
GROUND FLOOR PLAN – FIRE FIGHTING LAYOUT

SCALE:	1/50
DATE:	SEP-2026
DRAWN:	A.S.
CHECKED:	A.MR.
APP'D:	
SHEET SIZE A:	A0 A1 A2 A3 A4
PROJ. No.:	DWG. No.:
L2026-14	M-306
APP'D FOR CONSTRUCTION :	
COMPUTER CODE No.	L2026-14-M306

FUEL OIL AND GAS ABBREVIATIONS	
LL	LOW LEVEL
h	HOUR
GEN	GENERATOR
F.F.L	FINISH FLOOR LEVEL
KVA	KILOVOLT-AMPERES
FOS	FUEL OIL SUPPLY PIPE
FOF	FUEL OIL FILL PIPE
FOV	FUEL OIL VENT PIPE
FOR	FUEL OIL RETURN PIPE
m	METER
L	LITER
m3	CUBIC METER
KG/m3	KILOGRAM PER CUBIC METER
UG	UNDERGROUND
∅	PIPE DIAMETER
#	NUMBER
o—	PIPE RISE
o—	PIPE DROP





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2 – XXXXX	Rev2	X.X	X/XX/XX
3 – XXXXX	Rev3	X.X	X/XX/XX
4 – XXXXX	Rev4	X.X	X/XX/XX
5 – XXXXX	Rev5	X.X	X/XX/XX
6 – XXXXX	Rev6	X.X	X/XX/XX

LEGEND

1 – ----------
2 – ----------
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4 – ----------
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NOTES

1 – XXXXX
2 – XXXXX
3 – XXXXX
4 – XXXXX
5 – XXXXX
6 – XXXXX

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PRESIDENTIAL PALACE

GENERAL DIRECTORATE BAABDA, LEBANON

MAIN ELECTRICAL / GENERATOR ROOMS

GROUND FLOOR PLAN – FUEL OIL LAYOUT

SCALE:	1/50
DATE:	SEP-2026
DRAWN:	A.S.
CHECKED:	A.MR.
APP'D:	
SHEET SIZE A:	A4 A3 A2 A1 A0
PROJ. No.:	DWG. No.:
L2026-14	M-307
APP'D FOR CONSTRUCTION :	
COMPUTER CODE No.	L2026-14-M307

THE TOTAL EXTERNAL STATIC PRESSURE ACROSS THE GENERATOR RADIATOR AIR PATH SHALL NOT EXCEED THE GENERATOR MANUFACTURER'S ALLOWABLE LIMIT TO ENSURE ADEQUATE AIRFLOW AND PROPER OPERATION OF THE BUILT-IN RADIATOR COOLING FANS

HVAC ABBREVIATIONS	
CDP	CONDENSATE DRAIN
DN	DOWN
DX	DIRECT EXPANSION
HL	HIGH LEVEL
EAD	EXTRACT AIR DUCT
EXF	EXTRACT FAN
FAL	FRESH AIR LOUVER
MFDR	MOTORIZED FIRE DAMPER
TR	TON REFRIGERATION
CFM	CUBIC FEET PER MINUTE
OU	OUTDOOR UNIT
IU	INDOOR UNIT
UT	UNDER TILE
PVC	POLYVINYL CHLORIDE
RS/RL	UNDER TILE
KVA	KILOVOLT-AMPERES
(TS)	TEMPERATURE SENSOR
(T)	THERMOSTAT
W	WATT
°C	DEGREE CELSIUS
mm	MILLIMETER
m	METER
Kg/m3	KILOGRAM PER CUBIC METER
m/s	METER PER SECOND
ø	PIPE DIAMETER

BUILT-IN COOLING RADIATOR FAN 20000 CFM COVERING 500 KVA

BUILT-IN COOLING RADIATOR FAN 20000 CFM COVERING 500 KVA

BUILT-IN COOLING RADIATOR FAN 20000 CFM COVERING 500 KVA

BUILT-IN COOLING RADIATOR FAN 40000 CFM COVERING 750 KVA

1 EXHAUST FLUE PIPES 2m ABOVE ROOF LEVEL COMPLETE WITH RAIN CAP/WEATHER HOOD AT TERMINATION

2 ø250 SEAMLESS BLACK STEEL, SCHEDULE 40 EXHAUST FLUE PIPES OF 4mm MINIMUM THICKNESS

3 DIESEL OXIDATION CATALYST FILTRATION UNIT SUITABLE FOR 500KVA GENERATOR OPERATION

4 MUFFLER SILENCER ACOUSTIC INSULATION COMPLETE WITH SPARK ARRESTOR AND FLEXIBLE CONNECTOR

5 ø50mm THICK MINERAL WOOL/ROCK WOOL INSULATION (DENSITY 80-120 kg/m3) COMPLETE WITH ALUMINUM CLADDING

6 FLEXIBLE STAINLESS STEEL ELBOWS CONNECTION AT GENERATOR OUTLET

GEN-1 500KVA GENERATOR-500KVA

GEN-2 500KVA GENERATOR-500KVA

GEN-3 500KVA GENERATOR-500KVA

GENERATOR-725KVA

EXISTING GEN/G4

GENERATOR ROOM 04 GF

IN1=2.25
TOP2=4.35

FUEL

EXHAUST FLUE PIPES 2m ABOVE ROOF LEVEL COMPLETE WITH RAIN CAP/WEATHER HOOD AT TERMINATION

ø300 SEAMLESS BLACK STEEL, SCHEDULE 40 EXHAUST FLUE PIPES OF 4mm MINIMUM THICKNESS

DIESEL OXIDATION CATALYST FILTRATION UNIT SUITABLE FOR 725KVA GENERATOR OPERATION

MUFFLER SILENCER ACOUSTIC INSULATION COMPLETE WITH SPARK ARRESTOR AND FLEXIBLE CONNECTOR

ø50mm THICK MINERAL WOOL/ROCK WOOL INSULATION (DENSITY 80-120 kg/m3) COMPLETE WITH ALUMINUM CLADDING

FLEXIBLE STAINLESS STEEL ELBOWS CONNECTION AT GENERATOR OUTLET

THE REQUIRED TOTAL COOLING AIR FLOW FOR OPERATING 2*500KVA OR 1*725KVA GENERATORS IS 40000 CFM

2000x2200,FAL+FILTER/2000x2200,MFDR
0.37 FREE AREA RATIO @ 2.5m/s VELOCITY

AIRTIGHT INSULATED STEEL DOOR COMPLETE WITH PERIMETER RUBBER GASKETS AND AUTOMATIC DROP SEAL

2800x1000,FAL+FILTER/2800x1000,MFDR
0.37 FREE AREA RATIO @ 2.5m/s VELOCITY

AIRTIGHT INSULATED STEEL DOOR COMPLETE WITH PERIMETER RUBBER GASKETS AND AUTOMATIC DROP SEAL

2800x1000,FAL+FILTER/2800x1000,MFDR
0.37 FREE AREA RATIO @ 2.5m/s VELOCITY

AIRTIGHT INSULATED STEEL DOOR COMPLETE WITH PERIMETER RUBBER GASKETS AND AUTOMATIC DROP SEAL

2800x1000,FAL+FILTER/2800x1000,MFDR
0.37 FREE AREA RATIO @ 2.5m/s VELOCITY

AIRTIGHT INSULATED STEEL DOOR COMPLETE WITH PERIMETER RUBBER GASKETS AND AUTOMATIC DROP SEAL

2000x2200,FAL+FILTER/2000x2200,MFDR
0.37 FREE AREA RATIO @ 2.5m/s VELOCITY

AIRTIGHT INSULATED STEEL DOOR COMPLETE WITH PERIMETER RUBBER GASKETS AND AUTOMATIC DROP SEAL

2800x1000,FAL+FILTER/2800x1000,MFDR
0.37 FREE AREA RATIO @ 2.5m/s VELOCITY

AIRTIGHT INSULATED STEEL DOOR COMPLETE WITH PERIMETER RUBBER GASKETS AND AUTOMATIC DROP SEAL

MOTORIZED FIRE DAMPERS INTERLOCKED WITH THE FIRE ALARM/FIRE SUPPRESSION SYSTEM AND SHALL AUTOMATICALLY CLOSE UPON ALARM ACTIVATION OR POWER FAILURE (FAIL-SAFE CLOSED)

900x1900,FAL+FILTER/900x1900,MFDR
0.37 FREE AREA RATIO @ 2.5m/s VELOCITY
RECOMMENDED AIR FLOW=3400 CFM

EXISTING LOUVER SHALL BE REMOVED

CP-01
CONTROL PANEL INCLUDING IN PHASE 1

AIRTIGHT INSULATED STEEL DOOR COMPLETE WITH PERIMETER RUBBER GASKETS AND AUTOMATIC DROP SEAL

EXISTING DX SPLIT UNIT SHALL BE REMOVED

TRANSFORMER ROOM FOR PV PANELS 01 GF

TRANSFORMER ROOM 03 GF

ELECTRICAL ROOM 02 GF

COOLING LOAD ESTIMATION 0.05TR/m2

IU(DX)-2.0

IU(DX)-2.0

ø32,CDP

750x400,EAD,UP TO ROOF LEVEL
OPENING SHALL BE COMPLETED WITH WIRE MESH

RS/RL,UP

RL/RS

RL/RS

ø50,CDP

ø150,PVC,UP

ø150,PVC,HL

EXF-75 (WALL MOUNTED)

ø50,CDP TO BE CONNECTED TO THE NEAREST PIPE

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5 – XXXXX	Rev5	X.X	X/XX/XX
6 – XXXXX	Rev6	X.X	X/XX/XX

LEGEND
1 –
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3 –
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NOTES
1 – XXXXX
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5 – XXXXX
6 – XXXXX

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PRESIDENTIAL PALACE
GENERAL DIRECTORATE BAABDA, LEBANON
MAIN ELECTRICAL / GENERATOR ROOMS
GROUND FLOOR PLAN – HVAC LAYOUT

SCALE:	1/50
DATE:	SEP-2026
DRAWN:	A.S.
CHECKED:	A.MR.
APP'D:	
SHEET SIZE A:	A1
PROJ. No.:	L2026-14
DWG. No.:	M-308
APP'D FOR CONSTRUCTION :	

COMPUTER CODE No.: L2026-14-M308

HVAC ABBREVIATIONS	
CDP	CONDENSATE DRAIN
DN	DOWN
DX	DIRECT EXPANSION
HL	HIGH LEVEL
EAD	EXTRACT AIR DUCT
EXF	EXTRACT FAN
FAL	FRESH AIR LOUVER
MFDR	MOTORIZED FIRE DAMPER
TR	TON REFRIGERATION
CFM	CUBIC FEET PER MINUTE
OU	OUTDOOR UNIT
IU	INDOOR UNIT
UT	UNDER TILE
PVC	POLYVINYL CHLORIDE
RS/RL	UNDER TILE
KVA	KILOVOLT-AMPERES
TS	TEMPERATURE SENSOR
T	THERMOSTAT
W	WATT
°C	DEGREE CELSIUS
mm	MILLIMETER
m	METER
Kg/m3	KILOGRAM PER CUBIC METER
m/s	METER PER SECOND
ø	PIPE DIAMETER

EXHAUST FLUE PIPES 2m ABOVE ROOF LEVEL
COMPLETE WITH RAIN CAP/WEATHER HOOD AT TERMINATION

EXHAUST FLUE PIPES 2m ABOVE ROOF LEVEL
COMPLETE WITH RAIN CAP/WEATHER HOOD AT TERMINATION

EXHAUST FLUE PIPES 2m ABOVE ROOF LEVEL
COMPLETE WITH RAIN CAP/WEATHER HOOD AT TERMINATION

EXHAUST FLUE PIPES 2m ABOVE ROOF LEVEL
COMPLETE WITH RAIN CAP/WEATHER HOOD AT TERMINATION

FUEL

EXF-3400 (3400CFM),LOCATED AT ROOF LEVEL
EXHAUST FAN SHALL BE AUTOMATICALLY CONTROLLED
BY A ROOM TEMPERATURE SENSOR/THERMOSTAT
FAN SHALL START AT 40°C AND STOP AT 30°C (ADJUSTABLE)

EXISTING FAN SHALL BE REMOVED
OPENING SHALL BE PROPERLY CLOSED AT ROOF

750x400,EAD AT ROOF LEVEL COMPLETE WITH WIRE MESH

OU(DX)-2.0 OU(DX)-2.0

RS/RL,DN
ø150,PVC,DN

ø150,PVC, AT ROOF LEVEL COMPLETE WITH WIRE MESH

750x400,EAD,DN

NOTES
1 - XXXXX
2 - XXXXX
3 - XXXXX
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5 - XXXXX
6 - XXXXX

LEGEND
1 ----------
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5 - XXXXX	Rev5	X.X	X/XX/XX
6 - XXXXX	Rev6	X.X	X/XX/XX

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PRESIDENTIAL PALACE

GENERAL DIRECTORATE BAABDA, LEBANON

MAIN ELECTRICAL / GENERATOR ROOMS

ROOF FLOOR PLAN - HVAC LAYOUT

SCALE:	1/50
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CHECKED:	A.MR
APP'D:	
SHEET SIZE A:	A1
PROJ. No.:	DWG. No.:
L2026-14	M-309
APP'D FOR CONSTRUCTION :	

COMPUTER CODE No.: L2026-14-M309