



MECHANICAL DRAWINGS

APR 2023

DWG. No.	DWG. TITLE	SCALE
M-L	LIST OF DRAWING	N.T.S.
M-01	AS BUILT PLAN	1:100
M-02	Basement Floor –Drainage System	1:100
M-03	Basement Floor –Water Supply System	1:100
M-04	Basement floor– HVAC System	1:100
M-05	Basement floor– VENTILATION	1:100
M-06	Basement floor– FRESH AIR	1:100
M-07	Basement floor –Fire Fighting System – Hose reel system	1:100
M-08	Basement floor –Fire Fighting System– Sprinklers system	1:100
M-09	Mechanical DETAILS–01	N.T.S.
M-10	Mechanical DETAILS–02	N.T.S.



State of Palestine



THE UNITED NATIONS
OFFICE PROJECT SERVICE
(UNOPS)


PROJECT NAME :
Renovating Two Existing Basement
Floors at Two Medical Centers in WB

The Palestinian Medical Complex


General Notes:

ALL DIMENSIONS ARE IN CM. (Unless Otherwise Indicated)
ALL LEVELS ARE IN M.
DIMENSIONS ARE TO BE READ NOT MEASURED.

Legend:




Floor Level in Plan
Designed Level



Floor Level in Sec.
Levels in Ele.

07				
06				
05				
04				
03				
02				
01				
REV.	DESCRIPTION	DATE	DWN	CHKD APPD

Designed by :



SIGMA ARABESQUE CONSULTING ENGINEERS
RAMALLAH – PALESTINE

LIST OF DRAWING

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PRODUCED BY:	SIGN.	ISSUE DATE :	

1

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4

5

Concept

Schematic

Design Development

Construction

Tendering

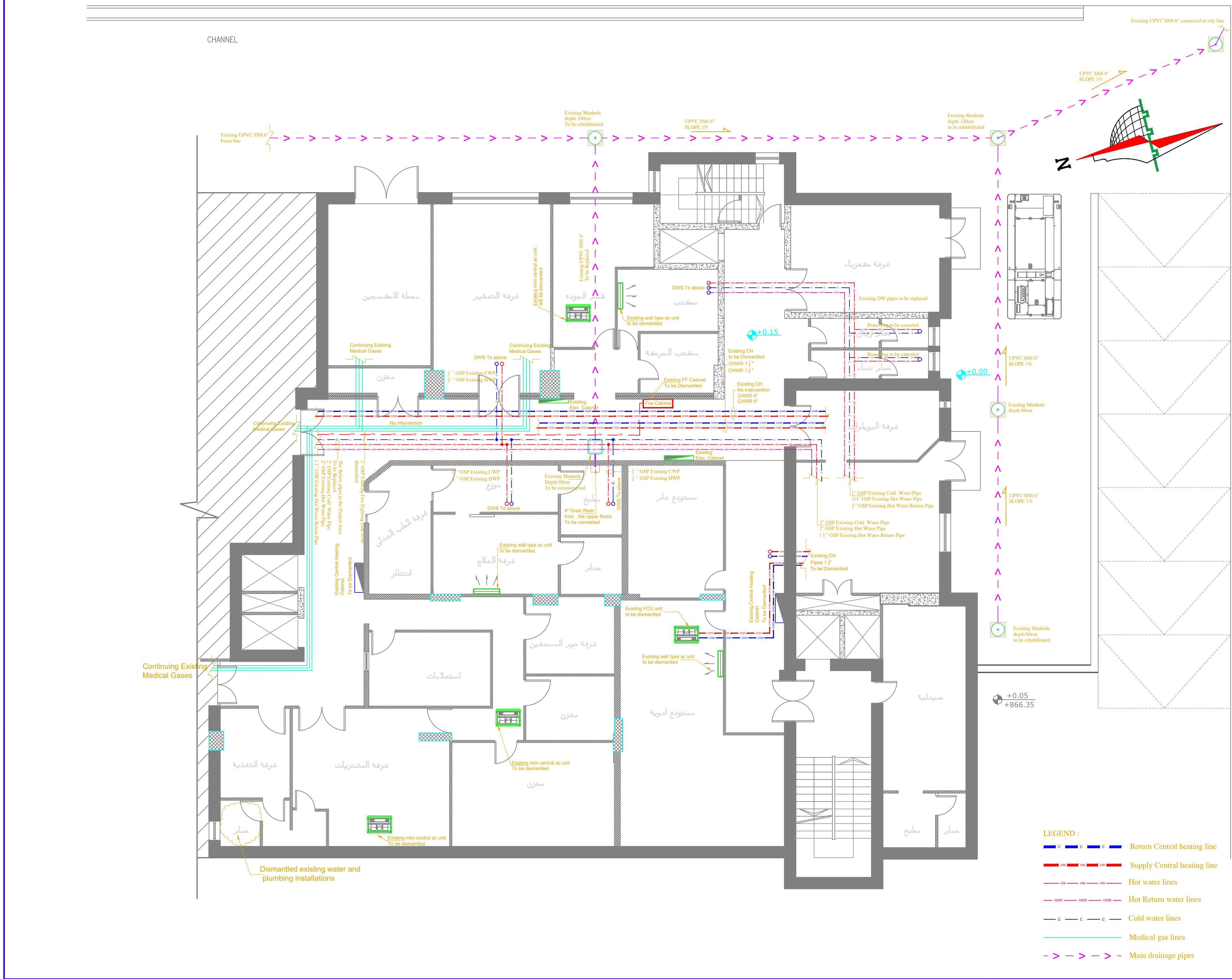
SCALE


N.T.S

SHEET NUMBER


M-L

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Legend:

▲ Floor Level in Plan
 Designed Level
— Floor Level in Sec.
 LevelS in Ele.

REV.	DESCRIPTION	DATE	DWN	CHKD	APPD
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06					
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03					
02					
01					

Designed by :



SIGMA ARABESQUE CONSULTING ENGINEERS
RAMALLAH - PALESTINE

**MAIN MECHANICAL SYSTEMS
INDICATIVE AS BUILT PLAN
WITH PROPOSED MODIFICATIONS**

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DRAWING PHASE	SCALE	SHEET NUMBER
1 Concept	1:100	M01
2 Schematic		
3 Design Development		
4 Construction		
5 Tendering		

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The slope of all drainage lines =1.5%.

Legend:

	Floor Level in Plan Designed Level
	Floor Level in Sec. LevelS in Ele.

REVISION NOTES

REV	DESCRIPTION	DATE	DWN	CHKD	APPD
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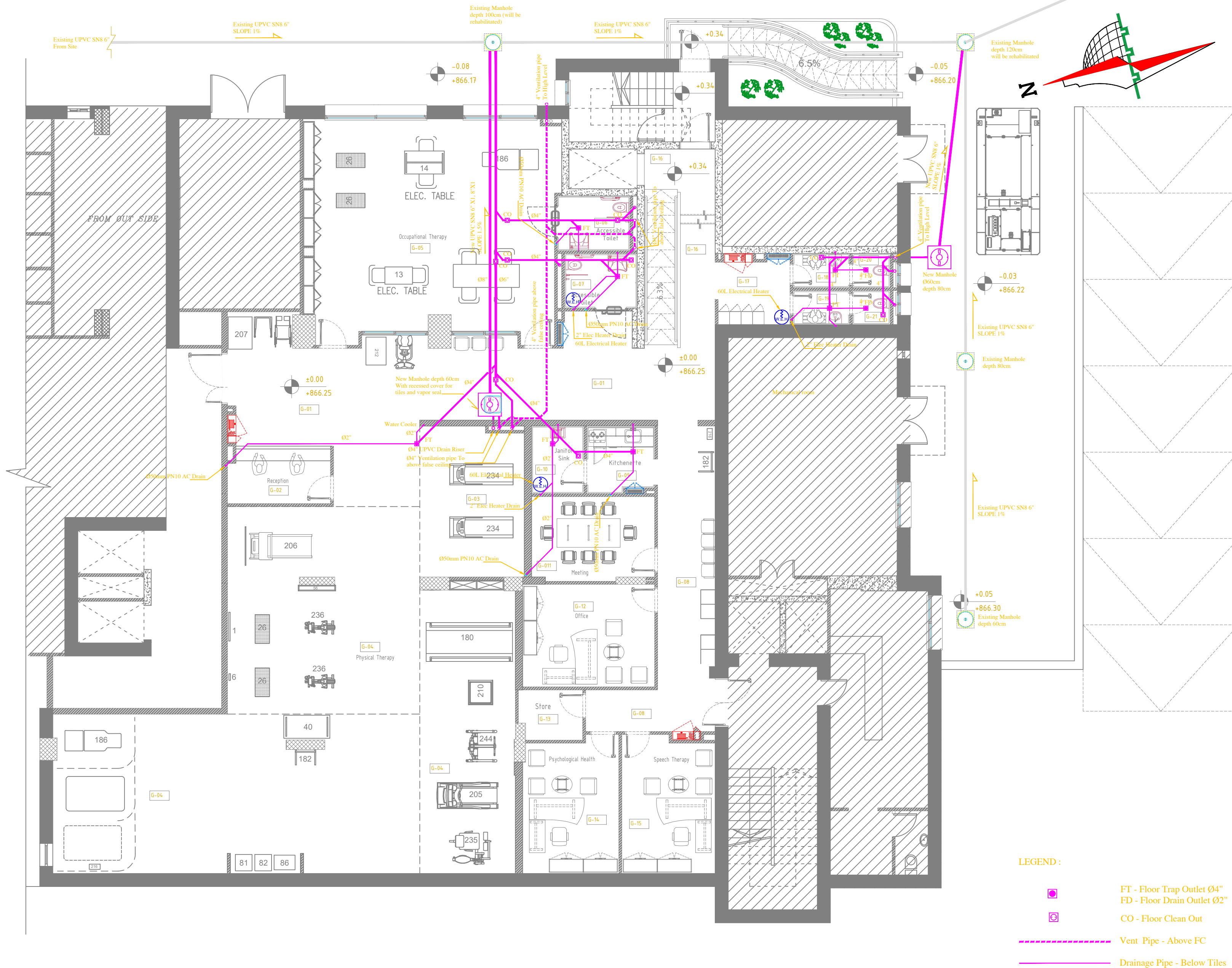
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BASEMENT FLOOR - DRAINAGE LAYOUT

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PRODUCED BY:	SIGN.	ISSUE DATE:	

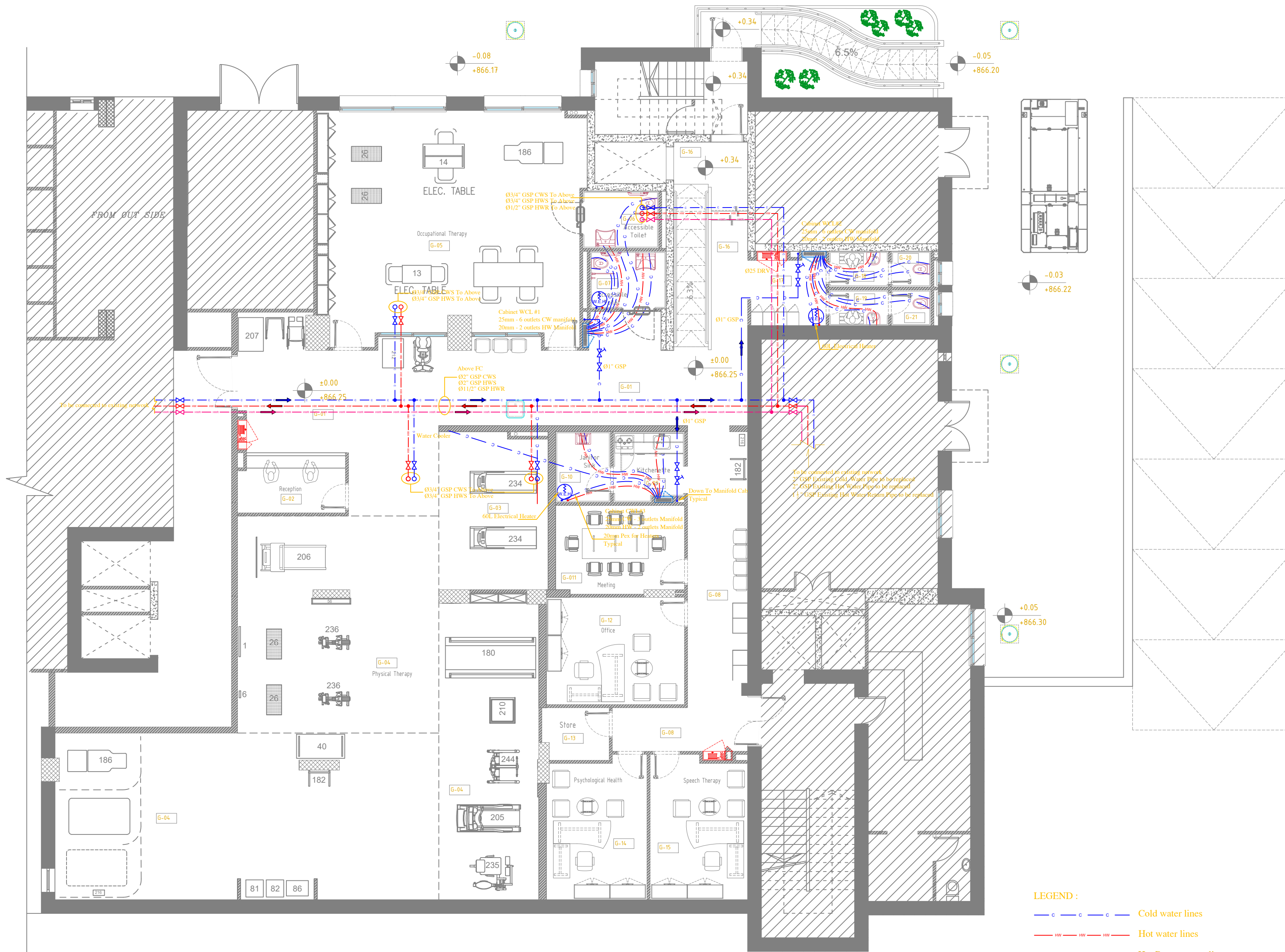
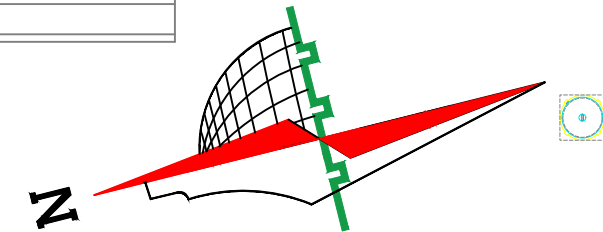
1 Concept	SCALE	SHEET NUMBER
2 Schematic	1:100	M-02
3 Design Development		
4 Construction		
5 Tendering		

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LEGEND :

- FT - Floor Trap Outlet Ø4"
- FD - Floor Drain Outlet Ø2"
- CO - Floor Clean Out
- Vent Pipe - Above FC
- Drainage Pipe - Below Tiles



- LEGEND :
- Cold water lines
 - Hot water lines
 - Hot Return water lines
 - Isolating Ball Valve
 - Globe Valve
 - Vertical 60L Electrical Heater



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Legend:

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- Designed Level
- Floor Level in Sec.
- Levels in Ele.

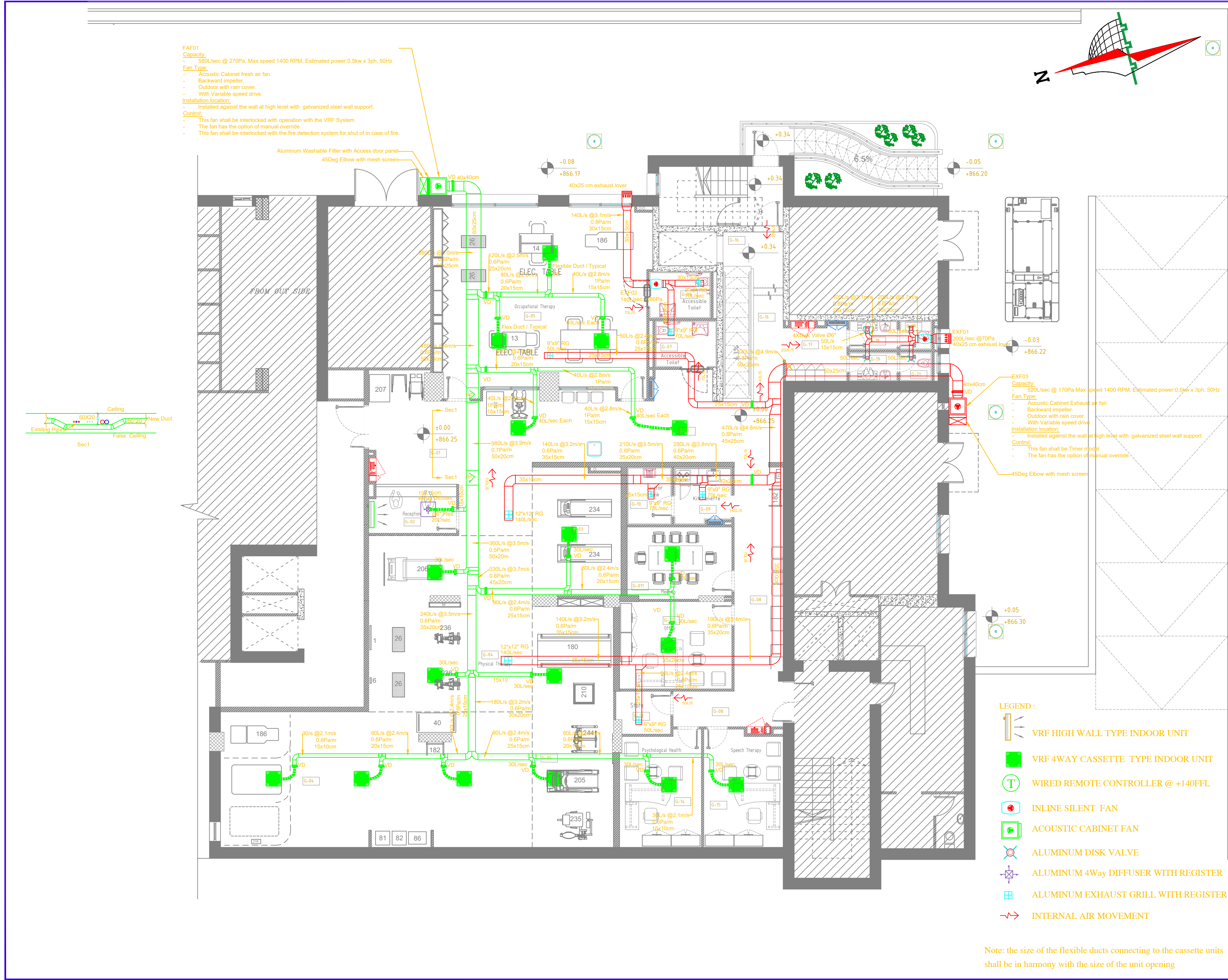
REV.	DESCRIPTION	DATE	DWN	CHKD	APPD
07					
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Designed by :
Sigma Arabesque Consulting Engineers
RAMALLAH - PALESTINE

BASEMENT FLOOR - WATER LAYOUT


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SCALE	SHEET NUMBER		
1:100	M-03		

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- Level in Ele.

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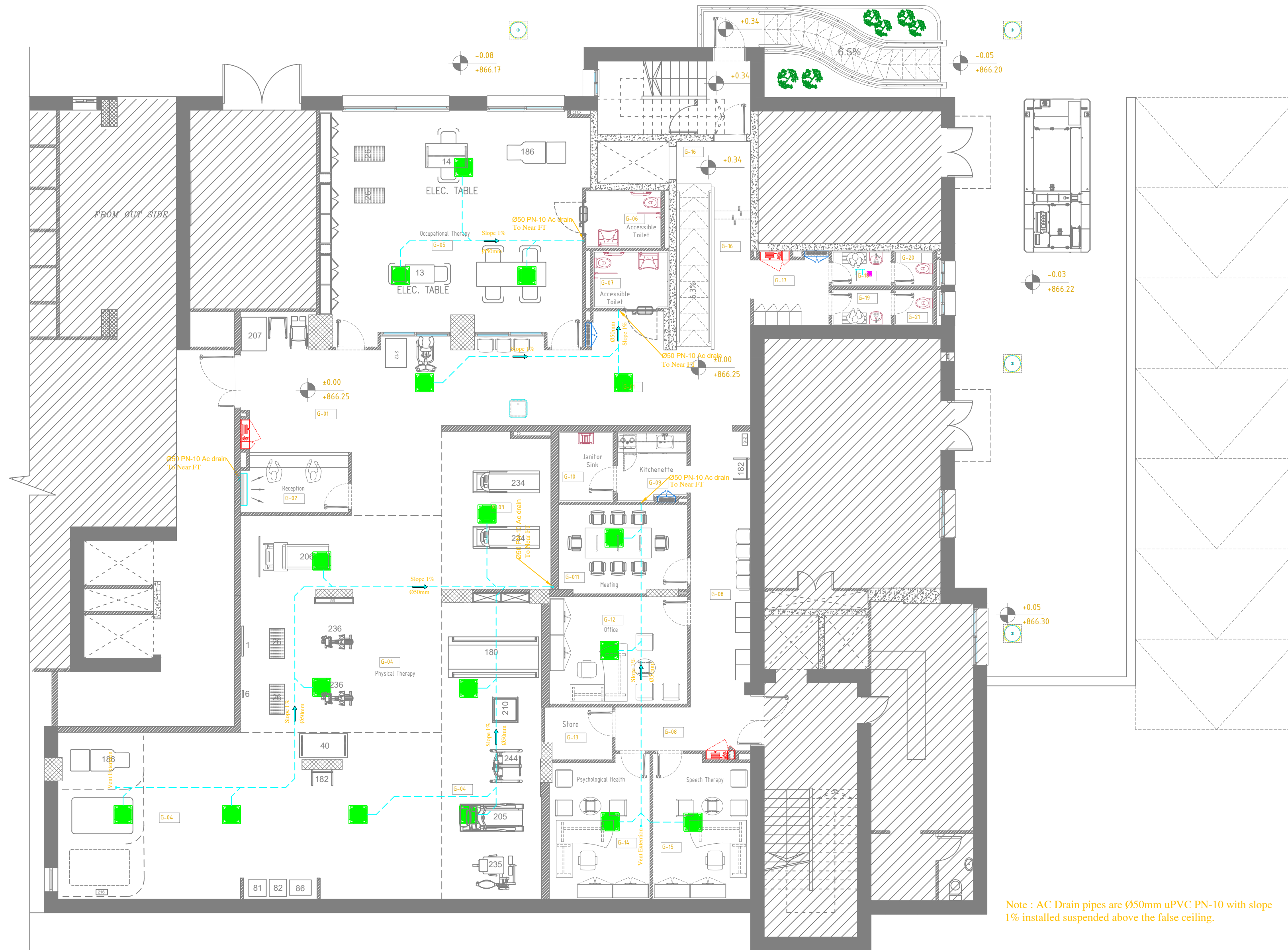
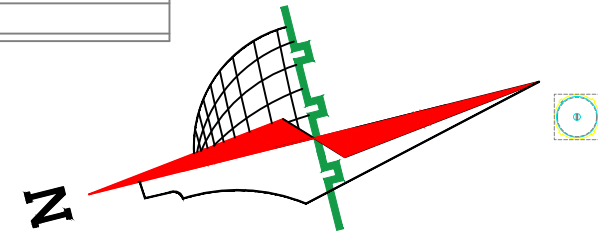
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BASEMENT FLOOR -HVAC LAYOUT
VENTILATION

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DRAWING	SCALE	SHEET NUMBER
1 Concept	1:100	M-05
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4 Construction		
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Note : AC Drain pipes are Ø50mm uPVC PN-10 with slope 1% installed suspended above the false ceiling.



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Legend:

- Floor Level in Plan
- Floor Level in Sec.
- LevelS in Ele.

REVISION NOTES				
07				
06				
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REV.	DESCRIPTION	DATE	DWN	CHKD APPD

Designed by :



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DRAWING TITLE				
HVAC LAYOUT Drain network				

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DRAWING PHASE	1 Concept	SCALE 1:100	SHEET NUMBER M-06
	2 Schematic		
	3 Design Development		
	4 Construction		
	5 Tendering		

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Legend:



— Floor Level in Sec.

— LevelS in Ele.

REVISION NOTES	07				
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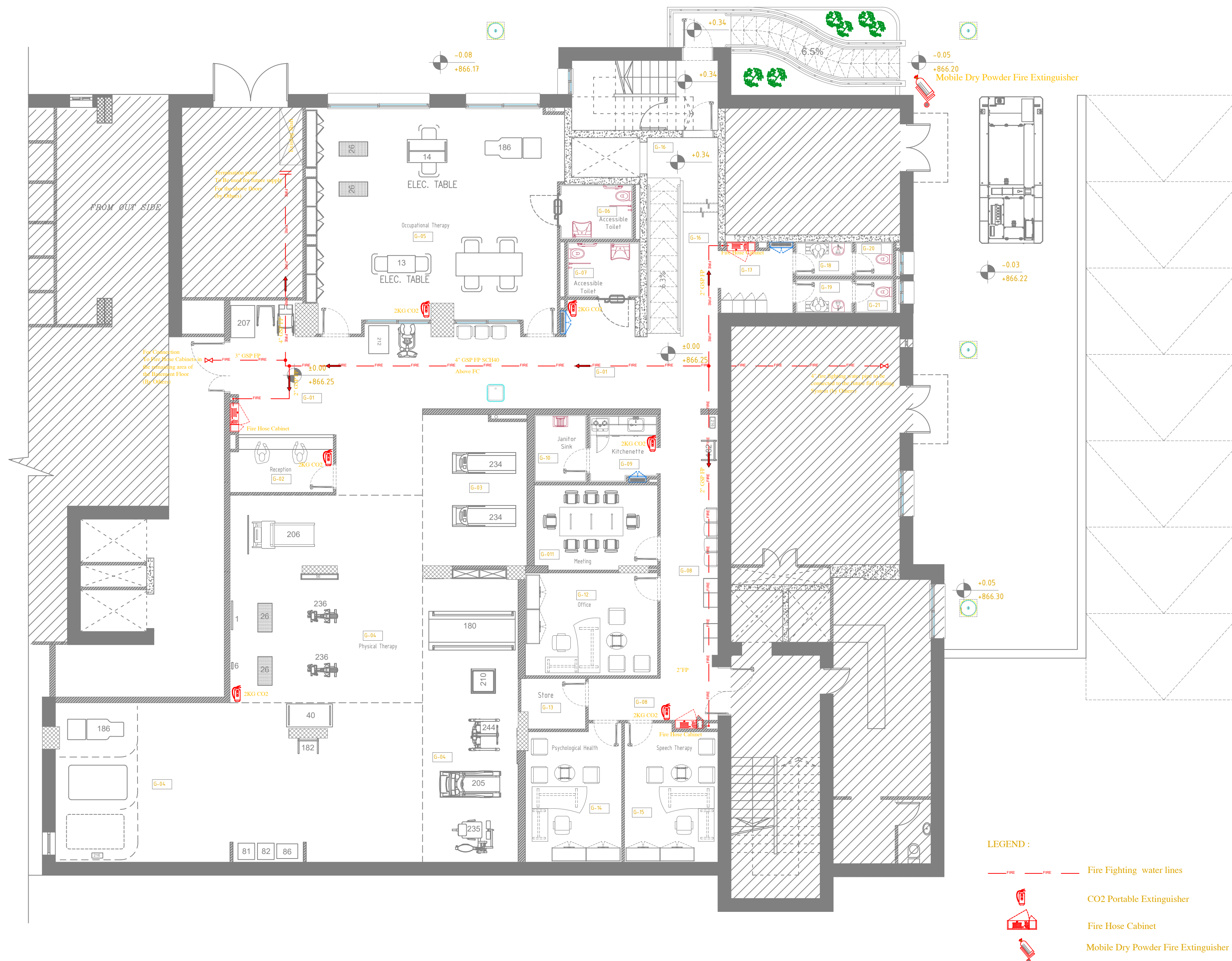
DRAWING TITLE

DRAWING TITLE: BASEMENT FLOOR - FIRE FIGHTING LAYOUT
HOSE REELS & PORTABLE EXTINGUISHERS

DESIGN TEAM	DESIGNED BY:	SIGN.	PROJECT MANAGER:	SIGN.
	CHECKED BY:	SIGN.	DIRECTOR of ENG. AFFAIRS:	SIGN.
	PRODUCED BY:	SIGN.	ISSUE DATE :	

DRAWING PHASE	1	Concept	SCALE 1:100	SHEET NUMBER M-07
	2	Schematic		
	3	Design Development		
	4	Construction		
	5	Tendering		

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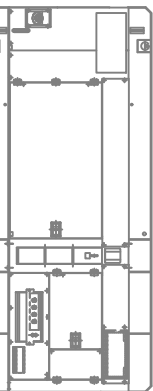
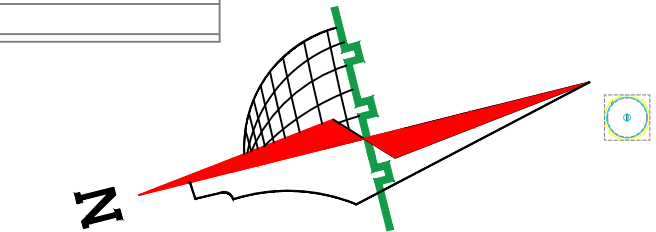
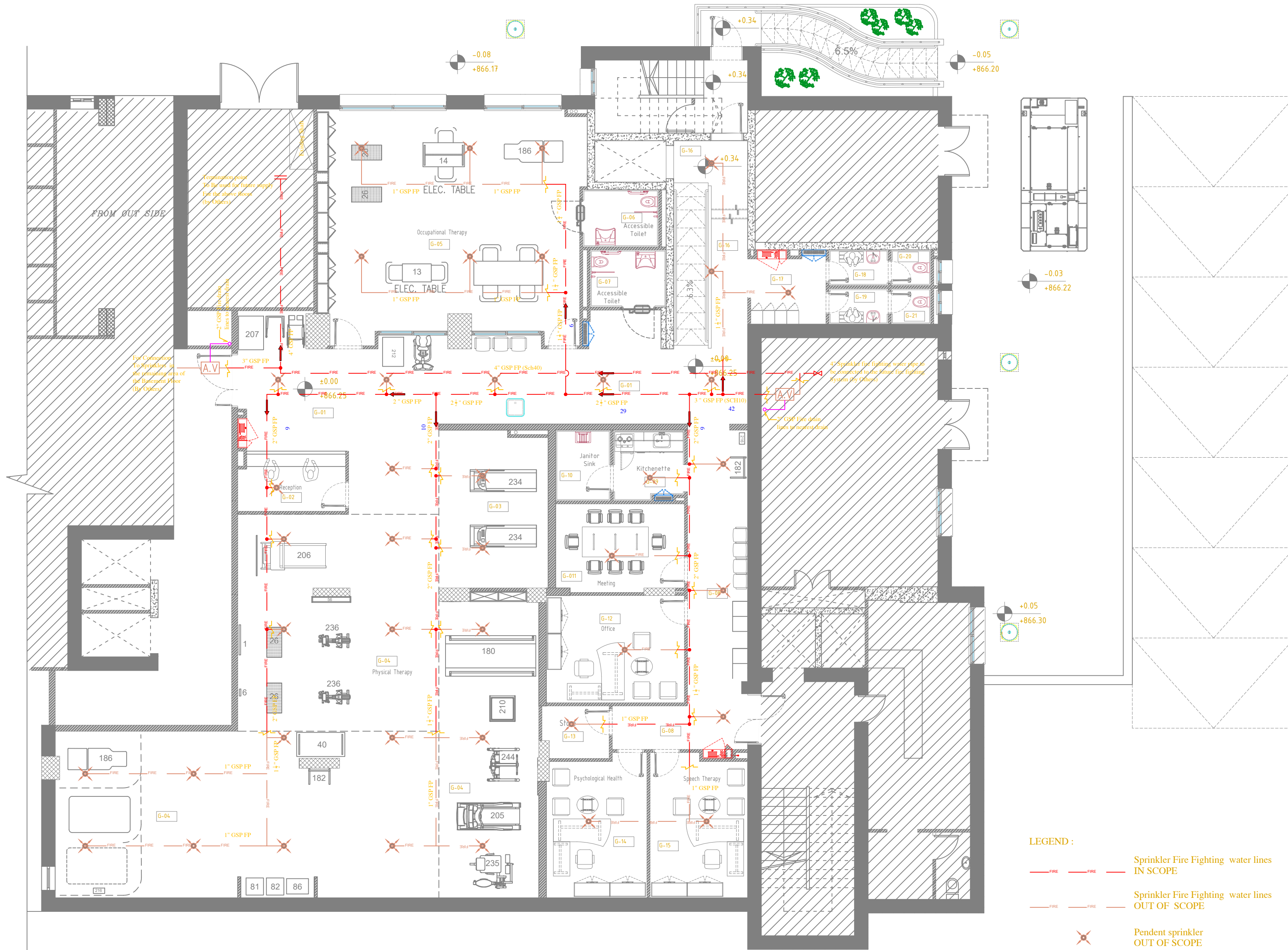
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BASEMENT FLOOR - FIRE FIGHTING LAYOUT
FIRST FIX FOR SPRINKLER SYSTEM

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DRAWING SCALE	SHEET NUMBER
1:100	M-08

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-0.03
+866.22

+0.05
+866.30

LEGEND :

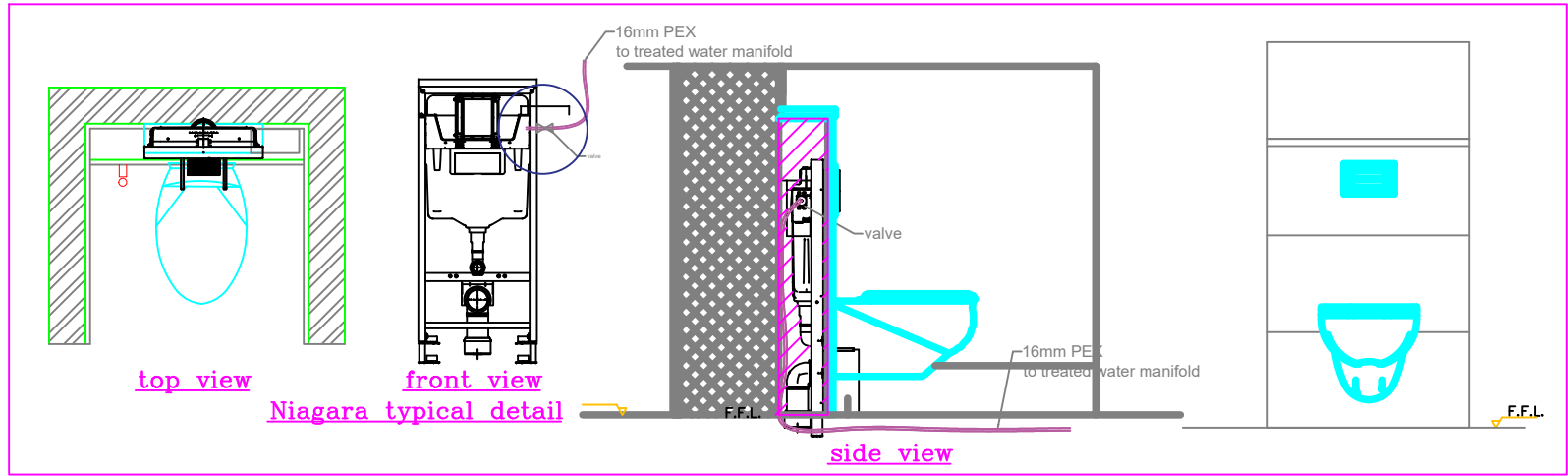
— FIRE — FIRE — Sprinkler Fire Fighting water lines
IN SCOPE

— FIRE — FIRE — Sprinkler Fire Fighting water lines
OUT OF SCOPE

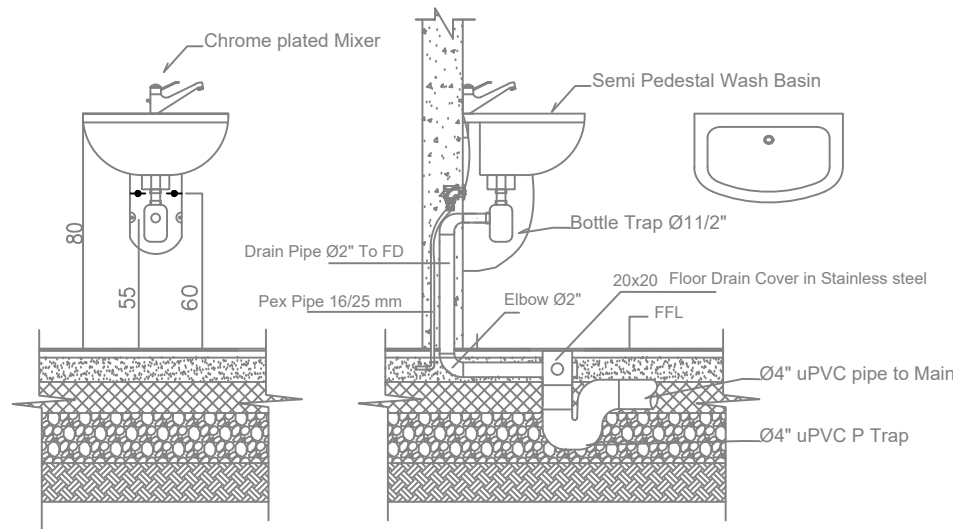
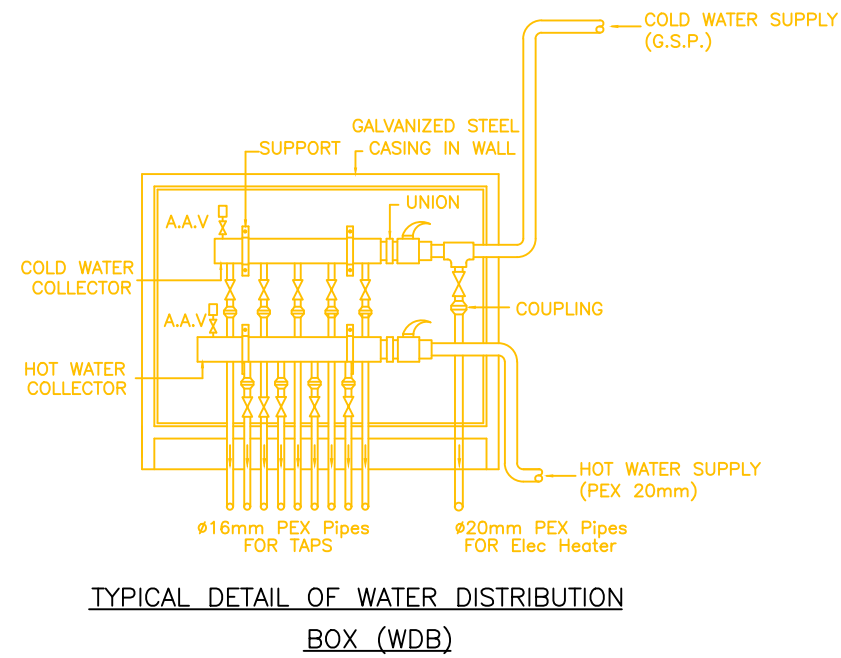
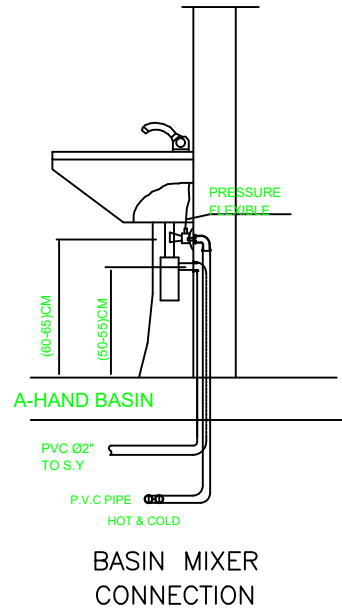
✕ Pendant sprinkler
OUT OF SCOPE

[A.V] Floor Control Valve
OUT OF SCOPE

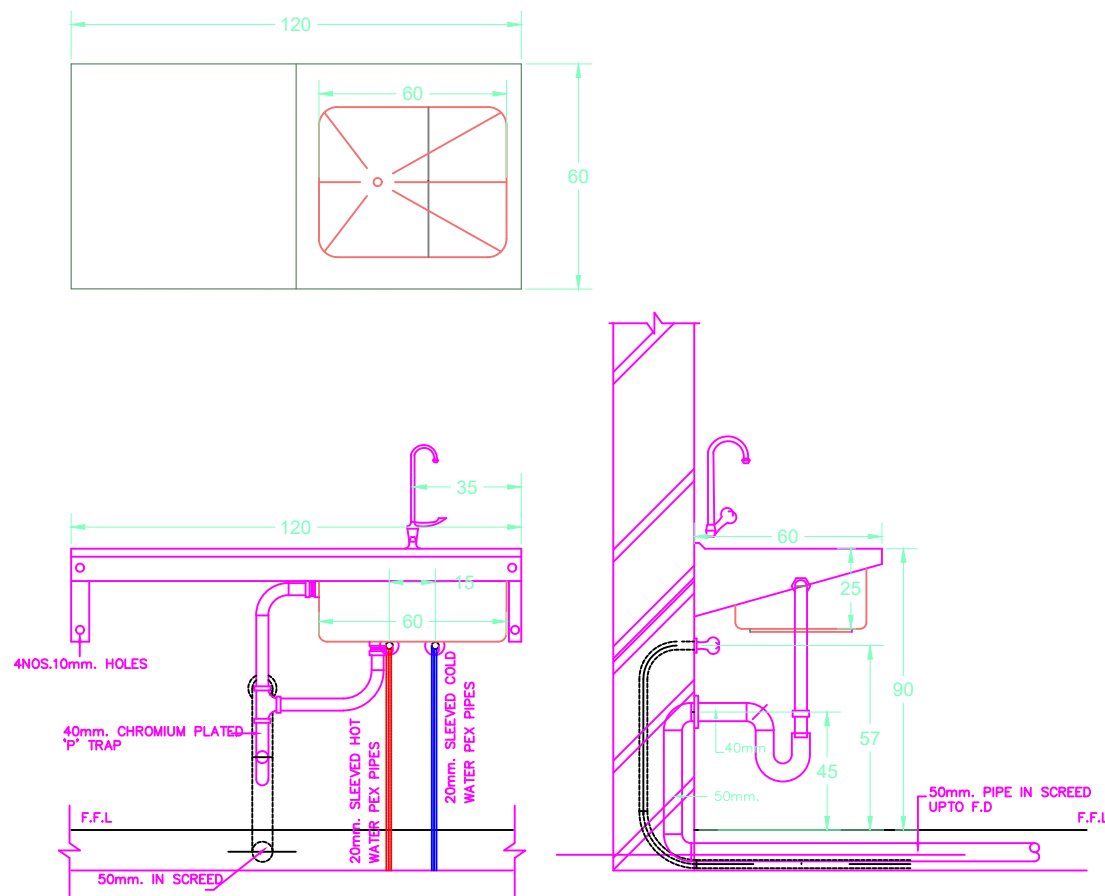
NOTES :
Hazard classification : Light Hazard
Sprinklers type: Pendant
Max Coverage area : 18.6m2
Max spacing : 4.6m



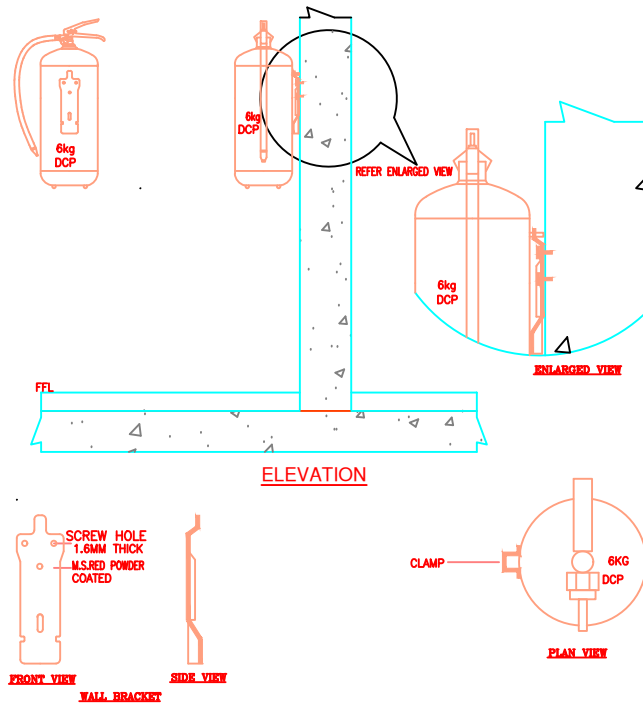
WALL HUNG TOILET DETAILS



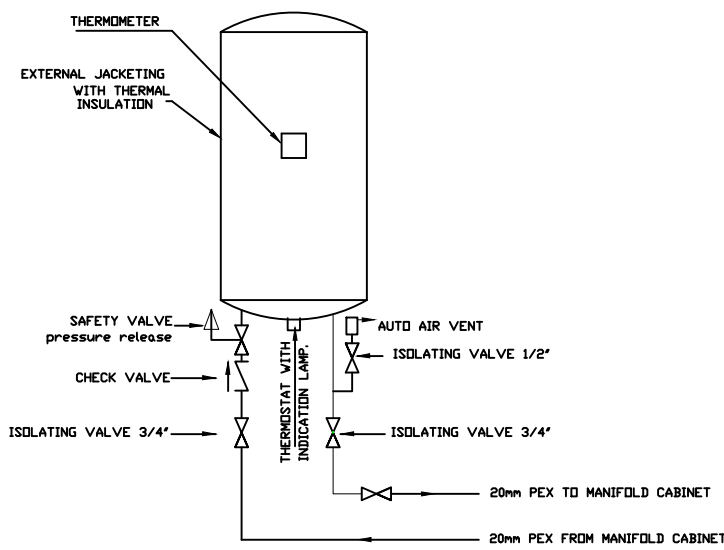
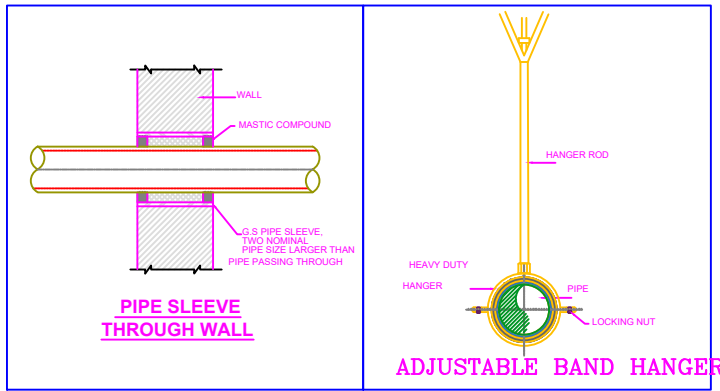
Semi Pedestal Wash Basin Detail with Cold/Hot Mixer



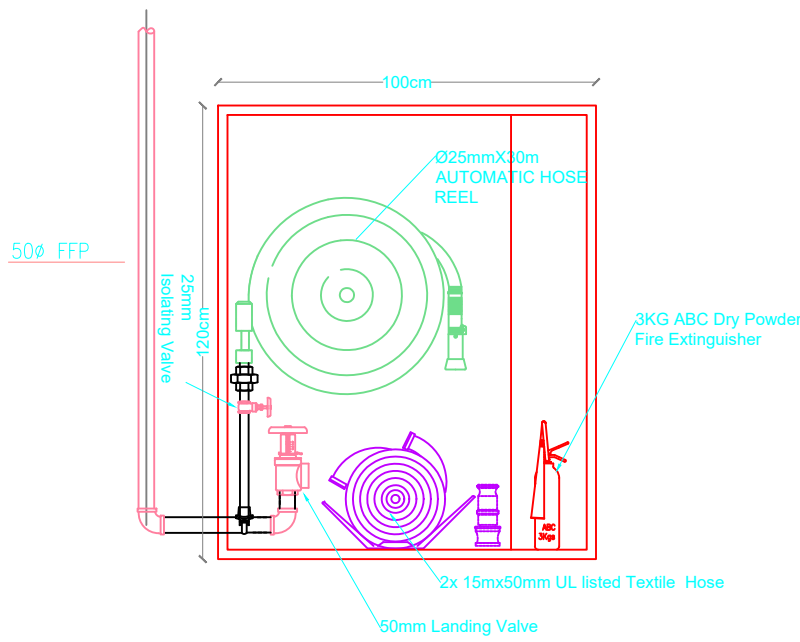
Single bowl sink 60x120
DIMENSIONS ARE IN mm



DRY POWDER (WALL MOUNTING DETAIL
SCALE : NTS



Electrical Heater Detail



FHCS
FIRE CABINET FOR HOSE REEL, LANDING VALVE, HOSE
NOZZLE & FIRE EXTINGUISHERS.
SCALE : NTS

SPECIFICATION :

1.	TYPE	SURFACE MOUNTED
2.	MATERIAL FOR CONSTRUCTION	
a.	DOOR & FRAME	2mm THICK METAL SHEET
b.	BACK BOX	2mm THICK METAL SHEET
3.	DOOR	SOLID (OPENING TO RIGHT HAND SIDE)
4.	FINISH	BRUSH FINISH
5.	HANDLE	ROUND LOCK STANDARD

GENERAL NOTES AND LEGEND

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Legend:

	Floor Level in Plan Designed Level
	Floor Level in Sec.
	Level S in Ele.

REVISION NOTES

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REV	DESCRIPTION	DATE	DWN	CHKD APPD

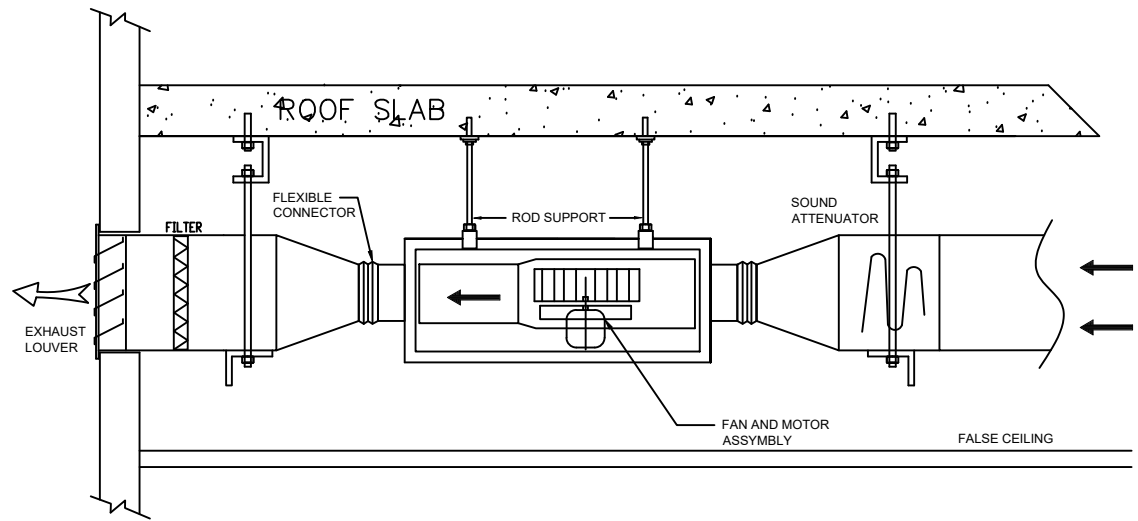
DRAWING TITLE

MECH DETAILS -01

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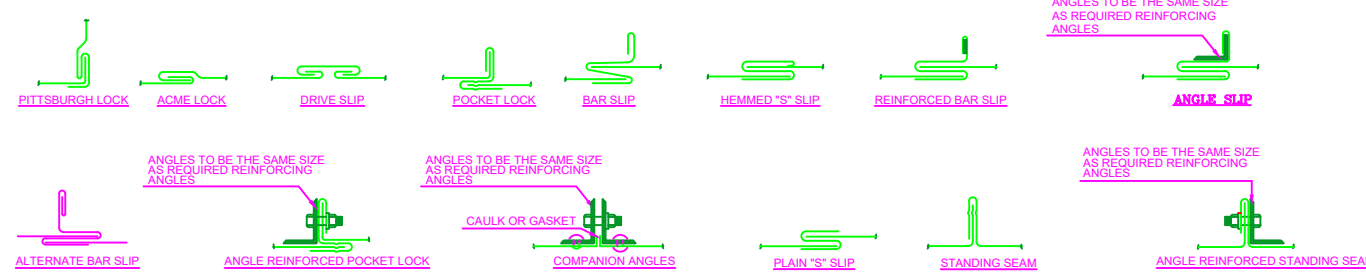
DRAWING REVISIONS	SCALE NTS	SHEET NUMBER M-9
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IN-LINE CENTRIFUGAL FAN

GREATEST DUCT DIMENSION	STEEL DUCTS U.S. STANDARD GAUGE	LONGITUDINAL SEAM	TRANSVERSE JOINT SMALLEST DIMENSION	TRANSVERSE JOINT GREATEST DIMENSION	REINFORCING (ALL DUCTS 18" THRU 54" SHALL BE CROSSBROKEN)
12" OR LESS	26	PITTSBURGH OR ACME LOCK	DRIVE SLIP OR POCKET LOCK OR BAR SLIP	PLAIN "S" SLIP OR POCKET LOCK OR BAR SLIP	NONE REQUIRED
13" THRU 18"	24	PITTSBURGH OR ACME LOCK	DRIVE SLIP OR POCKET LOCK OR BAR SLIP	PLAIN "S" SLIP OR POCKET LOCK OR BAR SLIP	NONE REQUIRED
19" THRU 30"	24	PITTSBURGH OR ACME LOCK	HEMMED "S" SLIP OR BAR SLIP OR DRIVE SLIP OR 1" POCKET LOCK	HEMMED "S" SLIP OR BAR SLIP OR POCKET LOCK	IF TRANSVERSE JOINTS ARE LOCATED 4'-0" OR LESS ON CENTER NO REINFORCING IF ON 8'-0" CENTERS REINFORCE WITH 1"x1"x18" ANGLES AT 4 FT. O.C. FASTENED TO DUCT ON 8" CENTERS
31" THRU 42"	22	PITTSBURGH OR ACME LOCK	DRIVE SLIP IF 18" OR LESS BAR SLIP, REINFORCED BAR SLIP, OR POCKET LOCK	BAR SLIP OR REINFORCED BAR SLIP OR POCKET LOCK	IF TRANSVERSE JOINTS ARE LOCATED 4'-0" OR LESS ON CENTER NO REINFORCING IF ON 8'-0" CENTERS REINFORCE WITH 1"x1"x18" ANGLES AT 4 FT. O.C. FASTENED TO DUCT ON 8" CENTERS
43" THRU 54"	22	PITTSBURGH LOCK	1 1/4" BAR SLIP OR REINFORCED BAR SLIP OR 1 1/2" POCKET LOCK	1 1/4" BAR SLIP OR REINFORCED BAR SLIP OR 1 1/2" POCKET LOCK	IF TRANSVERSE JOINTS ARE LOCATED 4'-0" OR LESS ON CENTER NO REINFORCING IF ON 8'-0" CENTERS REINFORCE WITH 1"x1"x18" ANGLES AT 4 FT. O.C. FASTENED TO DUCT ON 8" CENTERS
55" THRU 60"	20	PITTSBURGH LOCK	1 1/4" BAR SLIP OR REINFORCED PAR SLIP OR 1 1/2" POCKET LOCK	1 1/4" BAR SLIP OR REINFORCED PAR SLIP OR 1 1/2" POCKET LOCK	IF TRANSVERSE JOINTS ARE LOCATED 4'-0" OR LESS ON CENTER NO REINFORCING IF ON 8'-0" CENTERS REINFORCE WITH 1"x1"x18" ANGLES AT 4 FT. O.C. FASTENED TO DUCT ON 8" CENTERS
61" THRU 84"	20	PITTSBURGH LOCK	REINFORCED BAR SLIP OR ANGLE SLIP, ALTERNATE BAR SLIP, OR ANGLE REINFORCED POCKET LOCK	REINFORCED BAR SLIP OR ANGLE SLIP, ALTERNATE BAR SLIP, OR ANGLE REINFORCED POCKET LOCK	REINFORCE ALL SIDES OVER 60" WITH 1 1/2"x1 1/2"x18" ANGLES ON 2'-0" CENTERS. SIDES UNDER 60" NEED NO REINFORCING IF JOINTS ARE ON 4'-0" CENTERS. IF JOINTS ARE ON 8'-0" CENTERS REINFORCE WITH 1 1/2"x1 1/2"x18" ANGLES ON 4'-0" CENTERS.
85" THRU 96"	18	PITTSBURGH LOCK	1 1/2" COMPANION ANGLES, OR ANGLE REINFORCED POCKET LOCK OR 1 1/2" ANGLE SLIP OR REINFORCED BAR SLIP	1 1/2" COMPANION ANGLES, OR ANGLE REINFORCED POCKET LOCK OR 1 1/2" ANGLE SLIP OR REINFORCED BAR SLIP	REINFORCE ALL SIDES OVER 84" WITH 1 1/2"x1 1/2"x18" ANGLES ON 2'-0" CENTERS. SIDES 61" THRU 84" REINFORCE WITH 1 1/2"x1 1/2"x18" ANGLES ON 2'-0" CENTERS. REINFORCE ALL SIDES UNDER 60" WITH 1 1/2"x1 1/2"x18" ANGLES IF JOINTS ARE 8'-0" IN CENTER. NO REINFORCING IF JOINTS ARE 4'-0" ON CENTER.
OVER 96"	18	PITTSBURGH LOCK	2" COMPANION ANGLE, OR 2"x2"x14" ANGLE SLIP, OR 2"x2"x14" ANGLE REINFORCED POCKET LOCK OR REINFORCED BAR SLIP	2" COMPANION ANGLE, OR 2"x2"x14" ANGLE SLIP, OR 2"x2"x14" ANGLE REINFORCED POCKET LOCK OR REINFORCED BAR SLIP	REINFORCE ALL SIDES OVER 96" WITH 2"x2"x14" ANGLES ON 2'-0" CENTERS REINFORCE ALL SIDES 85" THRU 96" WITH 1 1/2"x1 1/2"x18" ANGLES ON 2'-0" CENTERS. REINFORCE ALL SIDES 61" THRU 84" WITH 1 1/2"x1 1/2"x18" ANGLES ON 2'-0" CENTERS. REINFORCE ALL SIDES UNDER 60" WITH 1 1/2"x1 1/2"x18" ANGLES IF JOINTS ARE 8'-0" IN CENTER. NO REINFORCING IF JOINTS ARE 4'-0" ON CENTER.



CONSTRUCTION OF RECTANGULAR STEEL DUCTWORK

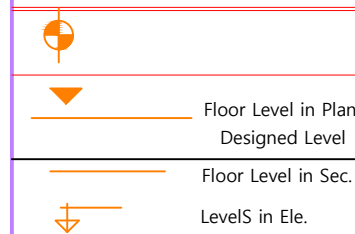
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GENERAL NOTES AND LEGEND

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Legend:



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07					
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SIGMA ARABESQUE CONSULTING ENGINEERS
 RAMALLAH - PALESTINE

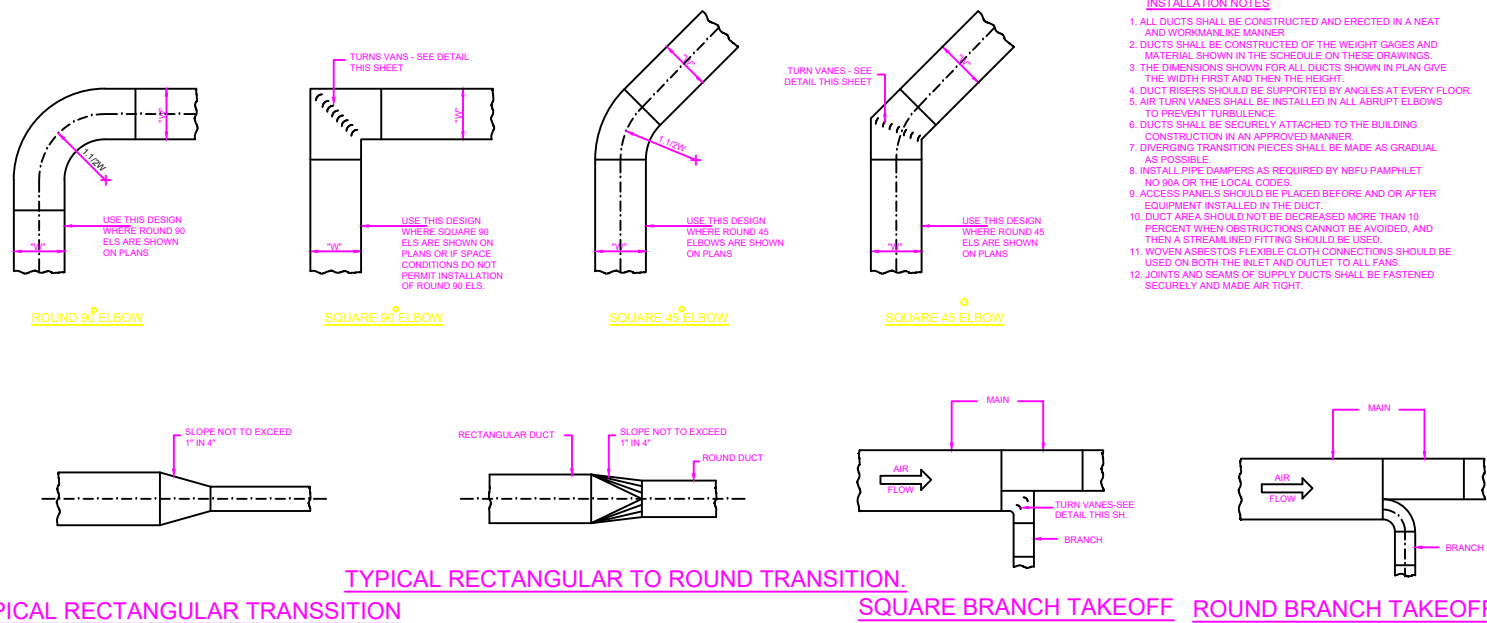
MECH DETAILS -02

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1 Concept
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SCALE: NTS
 SHEET NUMBER: M-10

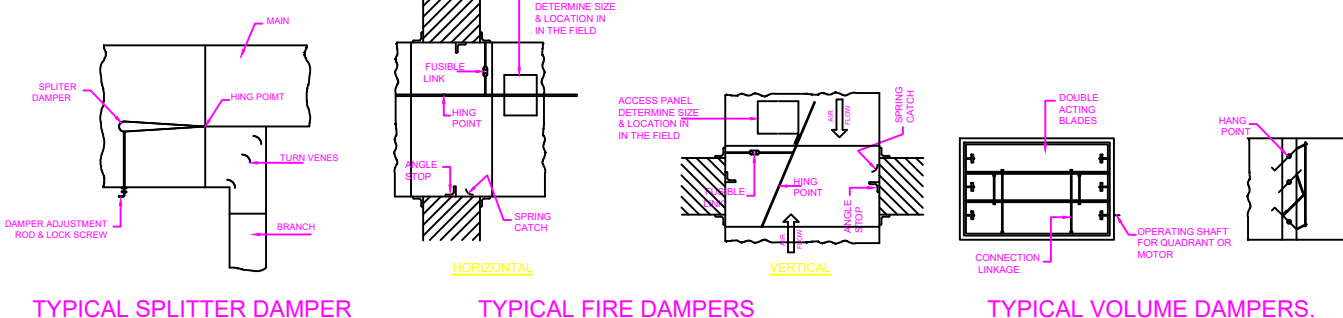
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TYPICAL RECTANGULAR TRANSITION

SQUARE BRANCH TAKEOFF

ROUND BRANCH TAKEOFF

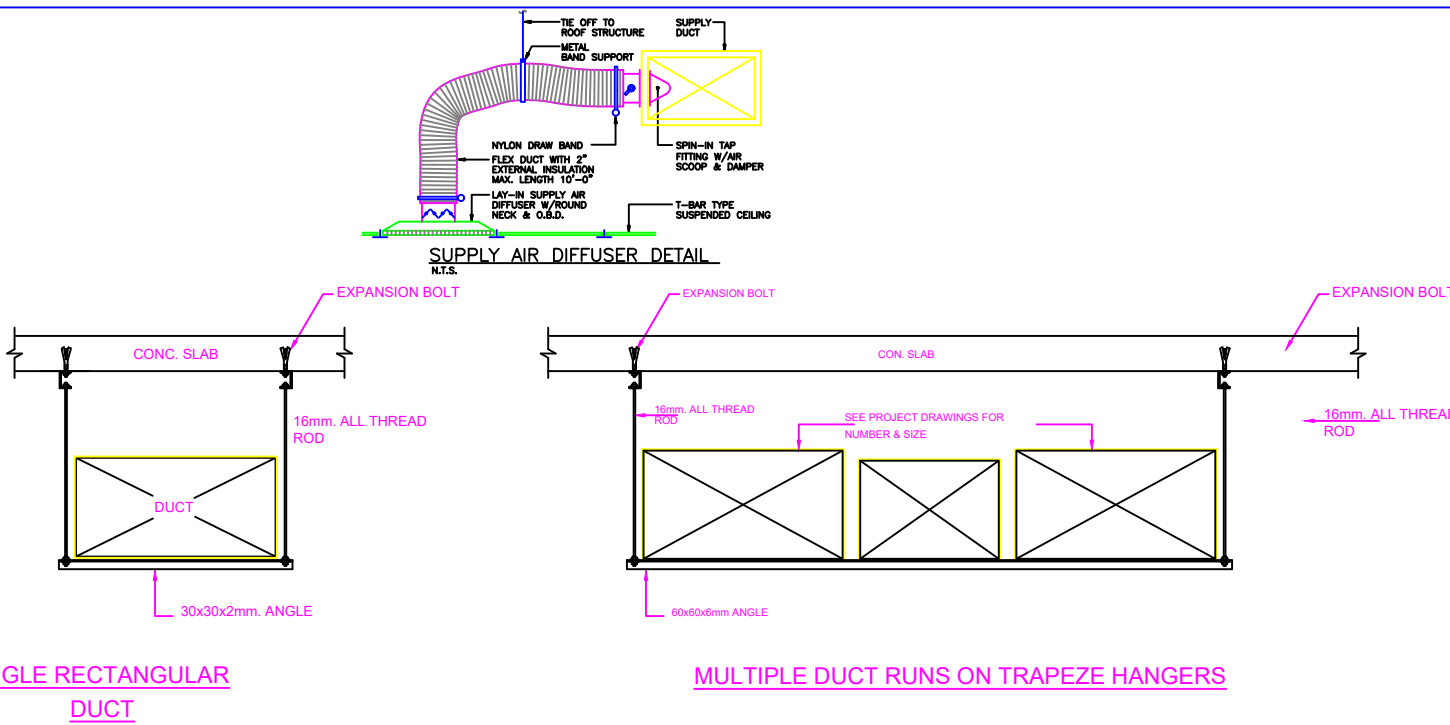


TYPICAL SPLITTER DAMPER

TYPICAL FIRE DAMPERS

TYPICAL VOLUME DAMPERS.

A 062



SINGLE RECTANGULAR DUCT

MULTIPLE DUCT RUNS ON TRAPEZE HANGERS

DETAILS OF THE INSTALLATION OF HANGERS AND SUPPORTS FOR DUCTWORK

A 054