HOSPITAL DESIGN

SERVICES DRAWINGS

Client: Ministry of Health

RIYAN PRIVATE LIMITED

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3rd floor, H. Azure, Ameeneemagu, Male'

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LIGHTING LEGEND

- LED RECESSED LIGHT TYPE 1 (18W)
- LED STRIP COVER LIGHT IP65 (8W)
- LED RECESSED LIGHT TYPE 2 (12W)
- 600 X 600 LED SQUARE DIFFUSER WITH T5 FITTINGS (12W)
- LED RECESSED LIGHT TYPE 3 (12W)
- LED DOWN LIGHT (18W) - WEATHER PROOF
- FLEX. POWER OUTLET W/ COVER PLATE (EXHAUST FAN)
- CEILING FAN (52" - 54")
- LED OUTDOOR WALL LIGHT UP/DWN (8W) - WEATHER PROOF
- LED SPKE LIGHT (3W)
- OUTDOOR WALL LIGHT 12W - WEATHER PROOF
- LIGHTING SWITCH
- FAN SWITCH
- LIGHTING CABLE
- TROFFER DIFFUSER WITH T5 FITTING (28W)
- LED INDOOR WALL LIGHT UP/DWN (8W)

LIGHTING NOTES

-ALL LIGHTS TO BE CONNECTED TO THEIR RESPECTIVE DB
-ALL CORRIDOR LIGHTS AND OUTDOOR LIGHTS ARE TIMMERD
-CONTRACTOR TO PREPARE SHOP DRAWINGS AND GET APPROVAL FROM CONSULTANT/PROJECT MANAGER FOR ALL LIGHTS, SWITCHES, DB, PANEL BOARD AND OTHER RELEVANT LIGHTING AND POWER POINT LOCATIONS INCLUDING CONDUITING AND WIRING AND TO BE VERIFIED AT SITE PRIOR TO CONSTRUCTION

GROUND FLOOR LIGHTING PLAN

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: 622187MOH
Date: October 2022

Architect : Zunaath Abdul Majid
Engineer :
Services : Nitheesh Kamrel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

Rev no	Date
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3rd floor, H. Azum, Ameeneemagu, Male'

Title: Ground Floor Lighting Layout

Page: EL-01 /03

LIGHTING LEGEND

- LED RECESSED LIGHT TYPE 1 (18W)
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FIRST FLOOR LIGHTING PLAN

SCALE 1:150

Hospital Design
Client: Ministry of Health

Project Number: R22387MOH
Date: October 2022

Architect : Zúnábath Abdul Majid
Engineer : Nitheesh Karmel Punarjan, Ibrahim Mohamed Evan,
Services : Sáravanaraj Sundharalingam & Mark Kenn Brito

Rev no	Date
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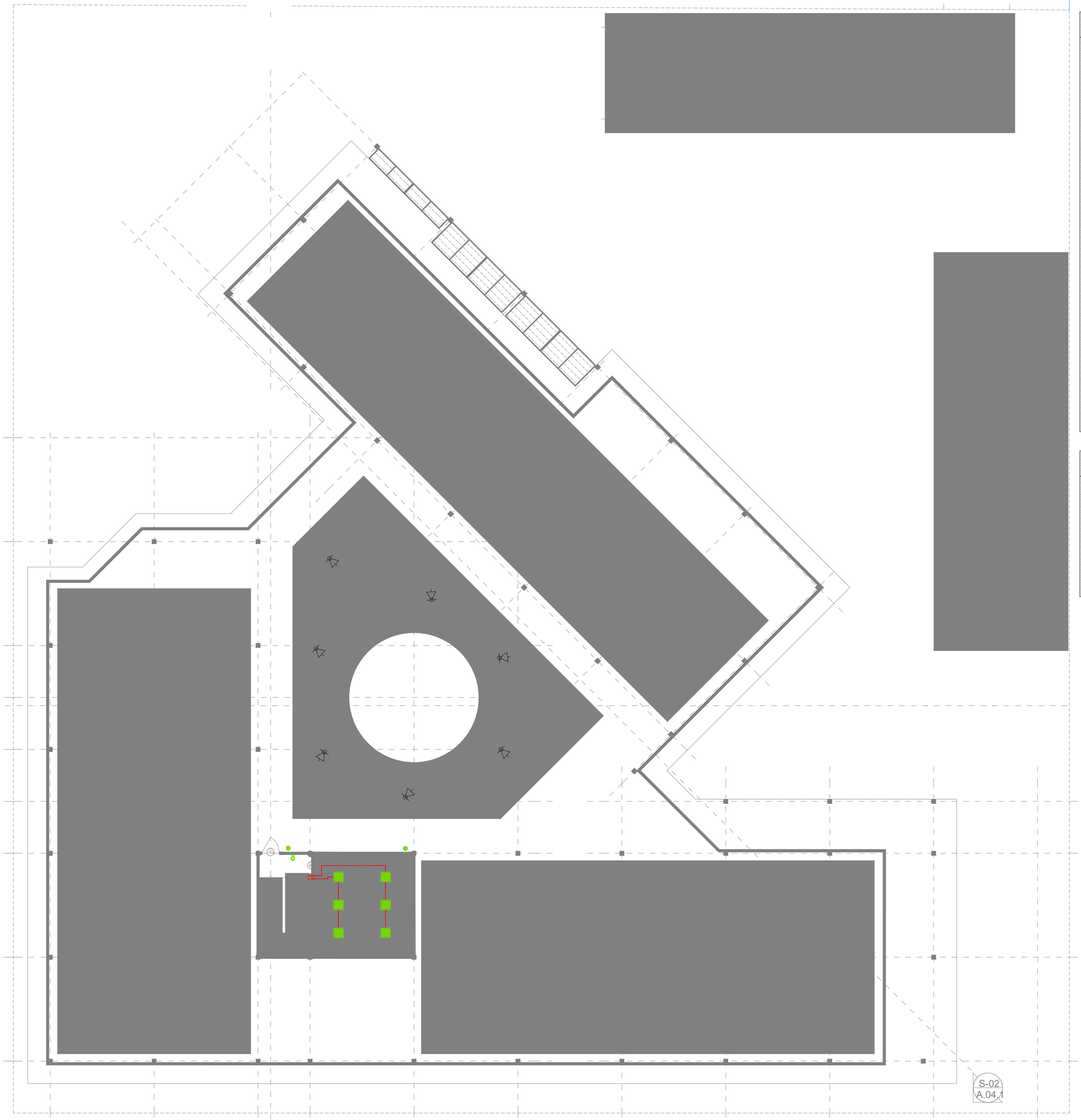
Title: First Floor Lighting Layout

Page: EL-02 /03



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TERRACE FLOOR LIGHTING PLAN

SCALE 1:150

0 0.5 1 2 3 4

Hospital Design
Client: Ministry of Health

Project Number: R2287MOH
Date: October 2022

Architect : Zunaidath Abdul Majid
Engineer : -
Services : Nitheesh Kamrel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Suruthaalingam & Mark Kevin Brito

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3rd floor, H. Asum, Ameenemagu, Male'

Title: Terrace Floor Lighting Layout

Page: EL-03 /03

LIGHTING LEGEND

- TWO GANG TV SOCKET OUTLET
- 13A POWER OUTLET (300MM FROM F.F.L) (ABOVE FALSE CEILING FOR TOKEN MONITORS)
- 13A TWIN SOCKET OUTLET (300MM FROM F.F.L)
- 13A UPS SOCKET OUTLET (300MM FROM F.F.L)
- POWER OVER ETHERNET OUTLET
- 15A POWER OUTLET
- VGA CABLE FOR PROJECTOR
- PROXIMITY CARD READER
- EXIT SWITCH
- DISTRIBUTION BOX
- 13A SOCKETS FOR TOILETS (1500 F.F.L)
- WEATHER PROOF POLYCARBONATE ENCLOSURE
- PAGING MIC
- VC — VOLUME CONTROLLER
- WS — WALL SPEAKERS AT CEILING LEVEL
- DR — EMERGENCY DOOR RELEASE
- NSP — NURSE STATION PANEL ROOM INDICATOR
- EML — ELECTROMAGNETIC LOCK
- DBB — DOOR BELL BUTTON
- DBR — DOOR BELL RECEIVER
- HONE SPEAKER
- CEILING SPEAKER
- 8 POWER POINTS ON ENVIROM VERTICAL HEADWALLS CALL POINT TO NURSES STATION: INTEGRATED IN ENVIROM BEDHEAD TRUNK
- TCP — THEATER CONTROL PANEL (INCLUDES TELEPHONE UNIT,FIRE ALARM STROBE,MEDICAL GAS INDICATOR UNIT)
- T.I — TABLE INTEGRATED OR F.F.L OUTLETS
- C.L — CEILING LEVEL OUTLETS
- H.L — HIGH LEVEL OUTLETS ON WALL

POWER NOTES

- ALL POWER POINTS CONNECTED TO THE RESPECTIVE DB
- CONTRACTOR TO PREPARE SHOP DRAWINGS AND GET APPROVAL FROM CONSULTANT/PROJECT MANAGER FOR ALL LIGHTS, SWITCHES, DB, PANEL BOARD, EAC, REQUIRED ISOLATORS, ACV SERVICES AND OTHER RELEVANT LIGHTING AND POWER POINT LOCATIONS INCLUDING CONDUITING AND WIRING AND TO BE VERIFIED AT SITE PRIOR TO CONSTRUCTION
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- CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ELECTRICAL POWER REQUIREMENTS AND POWER POINTS FOR MECHANICAL VENTILATION DEVICES TO ELECTRICAL CONTRACTOR
- OT, RADIOLOGY, ECG/EEG AND SCAN ROOMS' POWER CONSUMPTION IS IN GENERAL. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH RELEVANT EQUIPMENT MANUFACTURERS REGARDING EQUIPMENT POWER CONSUMPTION.

GROUND FLOOR POWER PLAN

SCALE 1:150

Hospital Design
Client: Ministry of Health

Project Number: R22187MOH
Date: October 2022
Architect : Zunaidath Abdul Majid
Engineer :
Services : Nitheesh Kamal Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

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3rd floor, H. Azum, Ameeneemagu, Male'

Title: Ground Floor Power Layout

Page: EP-01 /03

LIGHTING LEGEND

- TWO GANG TV SOCKET OUTLET
- 13A POWER OUTLET (300MM FROM F.F.L) (ABOVE FALSE CEILING FOR TOKEN MONITORS)
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FIRST FLOOR POWER PLAN

SCALE 1:150

Hospital Design
Client: Ministry of Health

Project Number: R22287MOH
Date: October 2022

Architect : Zunaidath Abdul Majid
Engineer :
Services : Nitheesh Kanmel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

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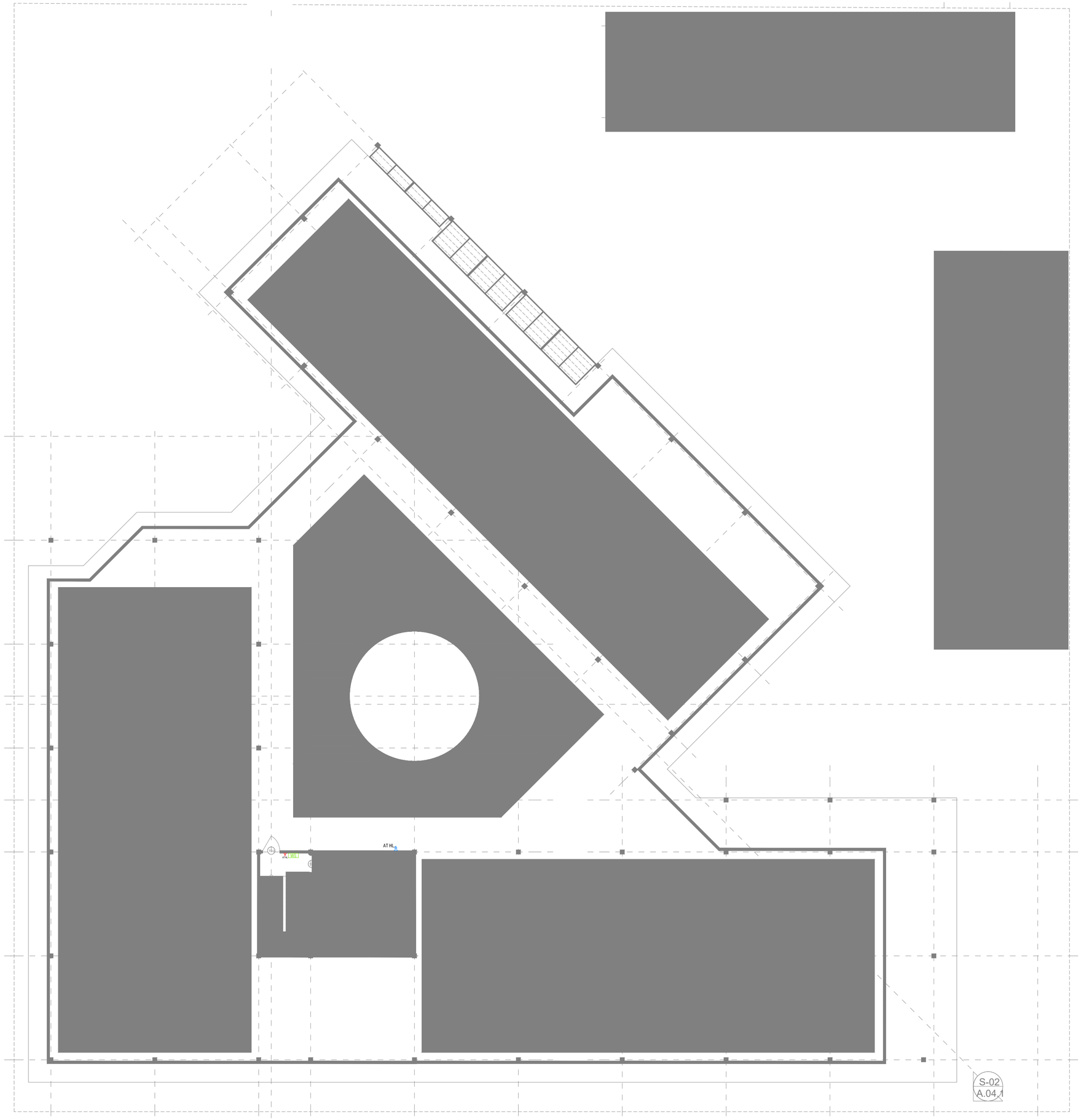
3rd floor, H. Azum, Ameeneemagu, Male'

Title: First Floor Power Layout

Page: EP-02 /03



LIGHTING LEGEND

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- PROXIMITY CARD READER
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- NSP NURSE STATION PANEL ROOM INDICATOR
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S-02
A.04.1

TERRACE FLOOR POWER PLAN

SCALE 1:150

0 0.5 1 2 3 4

Hospital Design
Client: Ministry of Health

Project Number: R22387MOH
Date: October 2022
Architect : Zundabth Abdul Majid
Engineer : Nitheesh Kamrel Punarjan, Ibrahim Mohamed Evan,
Services : Saravanaraj Sundharalingam & Mark Kenn Brito

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3rd floor, H. Azum, Ameeneemagu, Male'

Title: Terrace Floor Power Layout

Page: EP-03 /03

ACV LEGEND & ABBREVIATION

AHU	AIR HANDLING UNIT
	WALL MOUNTED UNIT
	CASSETTE UNIT
	OUTDOOR UNIT [TOP DISCHARGE]
ODU	OUTDOOR UNIT [SIDE DISCHARGE]
	CEILING MOUNTED EXHAUST FAN
	FRESH AIR/EXHAUST AIR FAN [DUCT IN LINE]
	WALL MOUNTED FAN
	REFRIGERANT PIPES WITH INSULATION
	AC DRAIN PIPES WITH INSULATION
	SUPPLY AIR DUCT WITH THERMAL INSULATION
	RETURN AIR DUCT WITH THERMAL INSULATION
	EXHAUST AIR DUCT
	FRESH AIR DUCT
	VOLUME CONTROL DAMPER
	SUPPLY AIR DIFFUSER WITH DAMPER
	RETURN AIR DIFFUSER WITH DAMPER
	EXHAUST AIR GRILL
	150MM WIDTH SUPPLY AND RETURN AIR GRILL
T/B	TO BELOW
T/A	TO ABOVE
F/A	FROM ABOVE
F/B	FROM BELOW
AHU	AIR HANDLING UNIT
TFA	TREATED FRESH AIR HANDLING UNIT
ODU	OUT DOOR UNIT

SPECIFICATION FOR VRF/VRV

Outdoor Unit
Air cooled VRF / VRV system working in R410A / R -407C or equivalent refrigerant. The system shall be suitable to operate on 3 phase, 380-415 V, 50Hz AC power supply & shall comprises with multiple no's of inverter, digital scroll/screw compressors, air cooled condenser fan with motor, microprocessor control panel, starter controls for all scroll compressors and condenser fan motors along with internal control and power wiring, cooling coil with internally interconnected refrigerant pipes, charging port and all other required accessories, & hardware's. The entire unit shall be with weather resistant powder coating paint for withstanding all ambient conditions for continuous outdoor operation

Indoor unit
Air Conditioning Units suitable for mounting inside false ceiling/wall hang, each comprising of cooling coil, blower with motor, electronic expansion valve, filter, insulated connection of refrigerant circuit, provision for fresh air intake ducting, condensate water drain pump with electronic level sensor, including wireless remote controller etc

Air Handling Unit (DX type)
AHU having GI double skin (0.6/0.8 mm thick) sandwich panel (PU injected foam with 45 mm thick, minimum density 40-50 kg/cu.m) with thermal break aluminium profile and heavy duty unit base. Air Handling Units complete with, dx coil (copper), motor, SISW/DIDW fan, pre filter (MERV 7/8) and fine filters (MERV 13).

Air Handling Unit (DX type) for OT,NICU, Labour room,Sterile Areas and Accidents and Emergencies-
AHU having GI double skin (0.6/0.8 mm thick) sandwich panel (PU injected foam with 45 mm thick, minimum density 40-50 kg/cu.m) with thermal break aluminium profile and heavy duty unit base. Air Handling Units complete with, dx coil (copper), motor, SISW/DIDW fan, pre filter (MERV 7/8) , fine filters (MERV 13) and HEPA Filter[H14]

NOTE

-The AC unit shall be suitable for operation under tropical condition with ambient temperature and relative humidity

-Proper access for easy maintenance to be provided as recommended by the manufacturer of AC equipment above false ceiling

-All ceiling suspended unit to be provided with anti vibration hangers spring type

-GI Ducting/Pre insulated duct for common areas and AL Ducting for OTs ,CSSD and sterile areas

-Acoustic insulation to be provided for duct with minimum 3Sqm from each AHU unit except OT and CSSD areas AHUs

-Canvas connection to be provided between indoor unit and duct

-Aluminium cladding to be provided over the insulation for the exposed duct and pipe works

-Air outlet shall be completely factory aluminium extruded with powder coated and the colour shall be the approval of the interior design

-Air outlet location and size shall be adjusted to suit reflected ceiling drawing,or site condition

-Louver with bird screen to be provided for all the fresh air and exhaust air duct

-Kitchen hood exhaust should be provided in the kitchen areas

-Contractor shall be responsible to provide electrical power requirements to electrical contractor

-Contractor shall be responsible for coordination of all other services

-Contractor shall be responsible to calculating the static pressure for AHU/Exhaust air fan

-Contractor shall be responsible to modify,change,reroute,re locate as per the site condition and submit shop drawing for approval

-Contractor to be provided detailed shop drawings before starting works

-The minimum Energy Efficient Ratio [EER] value for AC Should be 3.5 [KW/KW]

-All ACV equipment should be anti corrosive coated

GROUND FLOOR AC LAYOUT

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: R22/87MOH
Date: October 2022
Architect : Zundaath Abdul Majid
Engineer :
Services : Nitheesh Kanmel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

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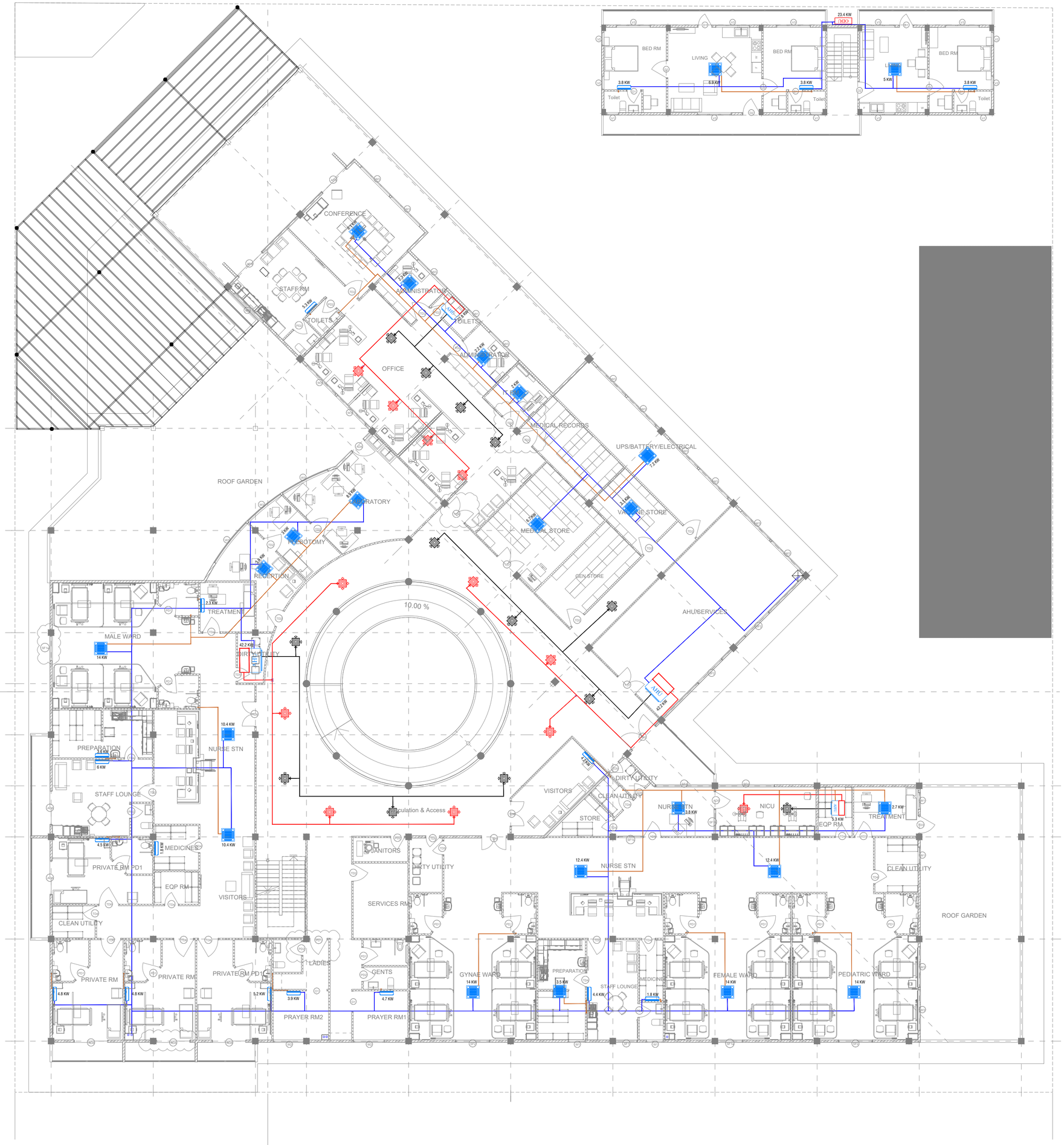
Title: Ground Floor AC Layout

Page: AC-01 /03



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	EXHAUST AIR GRILL
	150MM WIDTH SUPPLY AND RETURN AIR GRILL
T/B	TO BELOW
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- Contractor to be provided detailed shop drawings before starting works
- The minimum Energy Efficient Ratio [EER] value for AC Should be 3.5 [KW/KW]
- All ACV equipment should be anti corrosive coated

FIRST FLOOR AC LAYOUT

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number : R2218/MOH
Date: October 2022
Architect : Zunaibath Abdul Majid
Assistance :
Services : Nitheesh Karmel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sandhalalingam & Mark Kemi Brito

Rev no	Date
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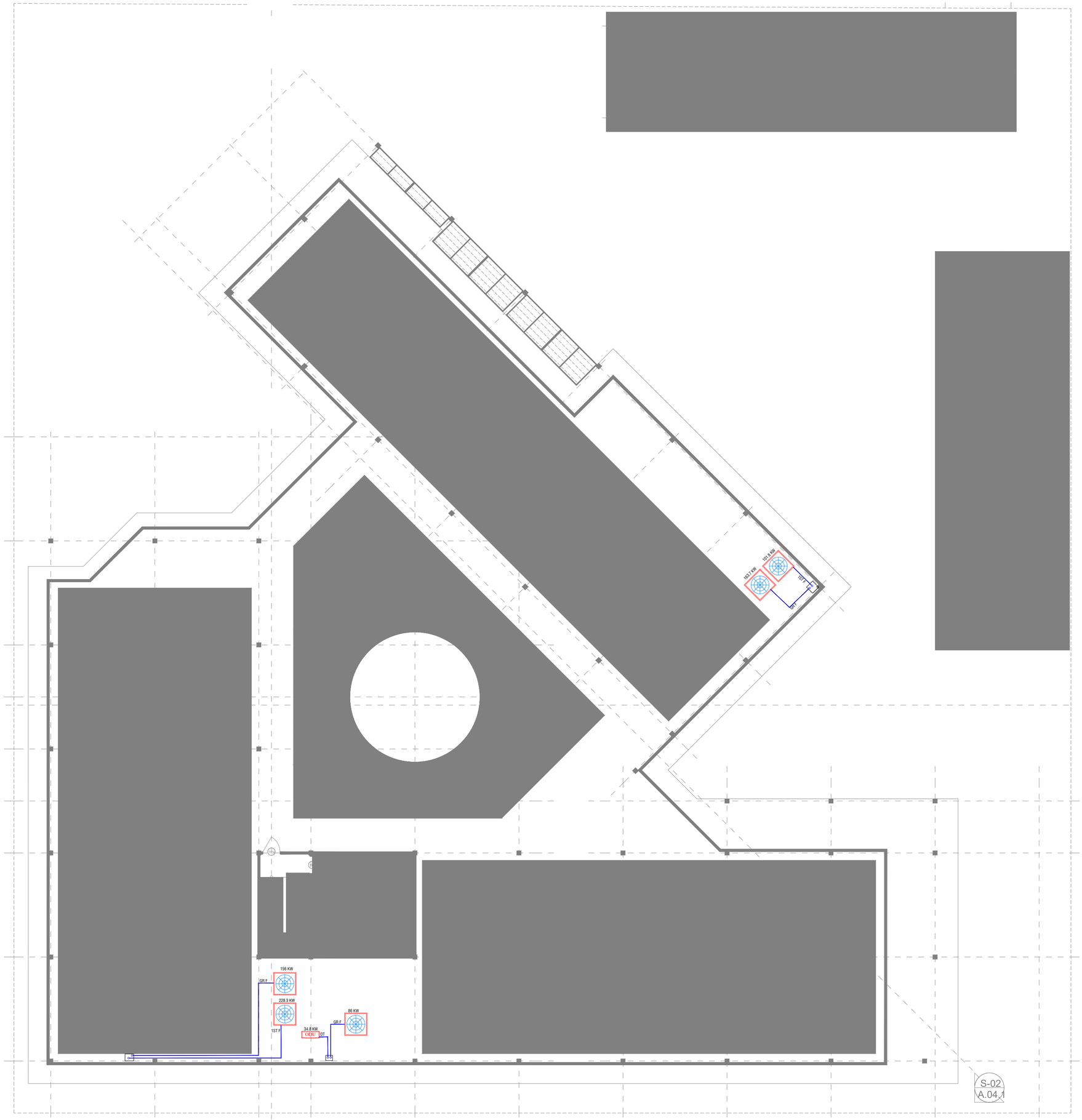
w : www.riyan.com.mv
3rd floor, H. Azum, Ameeneemagu, Male'

Title: First Floor AC Layout

Page: AC-02 /03



TERRACE FLOOR AC LAYOUT

SCALE 1:150

0 0.5 1 2 3 4

ACV LEGEND & ABBREVIATION

AHU	AIR HANDLING UNIT
	WALL MOUNTED UNIT
	CASSETTE UNIT
	OUTDOOR UNIT [TOP DISCHARGE]
ODU	OUTDOOR UNIT [SIDE DISCHARGE]
	CEILING MOUNTED EXHAUST FAN
	FRESH AIR/EXHAUST AIR FAN [DUCT IN LINE]
	WALL MOUNTED FAN
	REFRIGERANT PIPES WITH INSULATION
	AC DRAIN PIPES WITH INSULATION
	SUPPLY AIR DUCT WITH THERMAL INSULATION
	RETURN AIR DUCT WITH THERMAL INSULATION
	EXHAUST AIR DUCT
	FRESH AIR DUCT
	VOLUME CONTROL DAMPER
	SUPPLY AIR DIFFUSER WITH DAMPER
	RETURN AIR DIFFUSER WITH DAMPER
	EXHAUST AIR GRILL
	150MM WIDTH SUPPLY AND RETURN AIR GRILL
T/B	TO BELOW
T/A	TO ABOVE
F/A	FROM ABOVE
F/B	FROM BELOW
AHU	AIR HANDLING UNIT
TFA	TREATED FRESH AIR HANDLING UNIT
ODU	OUT DOOR UNIT

SPECIFICATION FOR VRF/VRV

Outdoor Unit
Air cooled VRF / VRV system working in R410A / R -407C or equivalent refrigerant. The system shall be suitable to operate on 3 phase, 380-415 V, 50Hz AC power supply & shall comprises with multiple no's of inverter, digital scroll/screw compressors, air cooled condenser fan with motor, microprocessor control panel, starter controls for all scroll compressors and condenser fan motors along with internal control and power wiring, cooling coil with internally interconnected refrigerant pipes, charging port and all other required accessories, & hardware's. The entire unit shall be with weather resistant powder coating paint for withstanding all ambient conditions for continuous outdoor operation

Indoor unit
Air Conditioning Units suitable for mounting inside false ceiling/wall hang, each comprising of cooling coil, blower with motor, electronic expansion valve, filter, insulated connection of refrigerant circuit, provision for fresh air intake ducting, condensate water drain pump with electronic level sensor, including wireless remote controller etc

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- -Contractor shall be responsible to calculating the static pressure for AHU/Exhaust air fan
- -Contractor shall be responsible to modify,change,reroute,re locate as per the site condition and submit shop drawing for approval
- -Contractor to be provided detailed shop drawings before starting works
- -The minimum Energy Efficient Ratio [EER] value for AC Should be 3.5 [KW/KW]
- -All ACV equipment should be anti corrosive coated

Hospital Design
Client: Ministry of Health

Project Number: R2287/MOH
Date: October 2022

Architect : Zunbath Abdul Majid
Engineer : Nitheesh Karmel Punarjan,
Services : Ibrahim Mohamed Evan,
Sai'avanaij Sundharalingam & Mark Kenn Brito

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3rd floor, H. Azum, Ameeneemagu, Male'

Title: Terrace Floor
AC Layout

Page: AC-03 /03

ACV LEGEND & ABBREVIATION

- AIR HANDLING UNIT
- WALL MOUNTED UNIT
- CASSETTE UNIT
- OUTDOOR UNIT [TOP DISCHARGE]
- OUTDOOR UNIT [SIDE DISCHARGE]
- CEILING MOUNTED EXHAUST FAN
- FRESH AIR/EXHAUST AIR FAN [DUCT IN LINE]
- WALL MOUNTED FAN
- REFRIGERANT PIPES WITH INSULATION
- AC DRAIN PIPES WITH INSULATION
- SUPPLY AIR DUCT WITH THERMAL INSULATION
- RETURN AIR DUCT WITH THERMAL INSULATION
- EXHAUST AIR DUCT
- FRESH AIR DUCT
- VOLUME CONTROL DAMPER
- SUPPLY AIR DIFFUSER WITH DAMPER
- RETURN AIR DIFFUSER WITH DAMPER
- EXHAUST AIR GRILL
- 150MM WIDTH SUPPLY AND RETURN AIR GRILL

T/B	TO BELOW
T/A	TO ABOVE
F/A	FROM ABOVE
F/B	FROM BELOW
AHU	AIR HANDLING UNIT
TFA	TREATED FRESH AIR HANDLING UNIT
ODU	OUT DOOR UNIT

SPECIFICATION FOR VRF/VRV

Outdoor Unit
Air cooled VRF / VRV system working in R410A / R -407C or equivalent refrigerant. The system shall be suitable to operate on 3 phase, 380-415 V, 50Hz AC power supply & shall comprises with multiple no's of inverter, digital scroll/screw compressors, air cooled condenser fan with motor, microprocessor control panel, starter controls for all scroll compressors and condenser fan motors along with internal control and power wiring, cooling coil with internally interconnected refrigerant pipes, charging port and all other required accessories, & hardware's. The entire unit shall be with weather resistant powder coating paint for withstanding all ambient conditions for continuous outdoor operation

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Air Conditioning Units suitable for mounting inside false ceiling/wall hang, each comprising of cooling coil, blower with motor, electronic expansion valve,, filter, insulated connection of refrigerant circuit, provision for fresh air intake ducting, condensate water drain pump with electronic level sensor, including wireless remote controller etc

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NOTE

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- -All ACV equipment should be anti corrosive coated

GROUND FLOOR VENTILATION LAYOUT

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: R22387MOH
Date: October 2022

Architect : Zunabath Abdul Majid
Engineer :
Services : Nitheesh Karmel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

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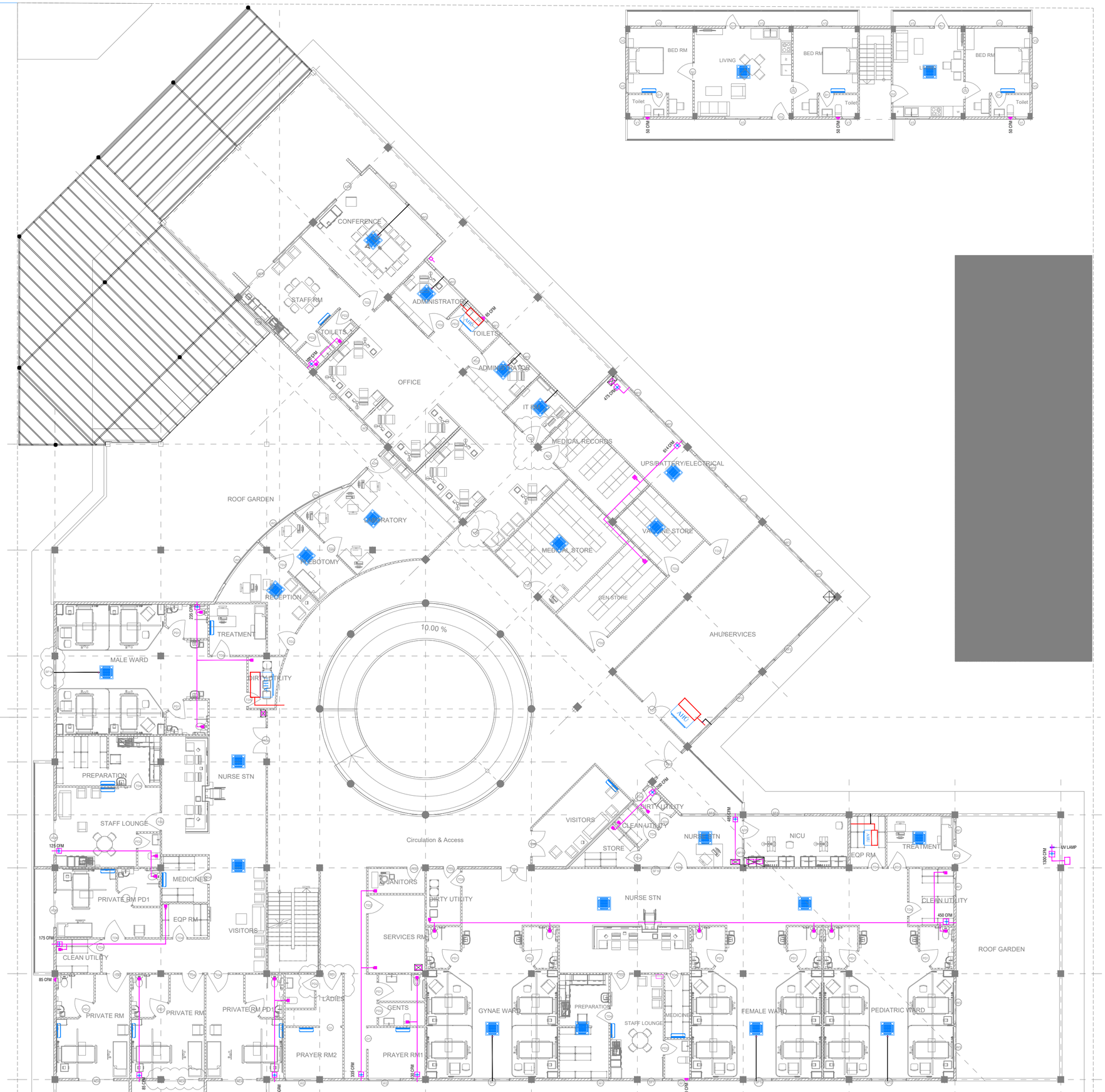
3rd floor, H. Azum, Ameeneemagu, Male'

Title: Ground Floor Ventilation Layout

Page: V-01 /03



ACV LEGEND & ABBREVIATION

- AHU — AIR HANDLING UNIT
- WALL MOUNTED UNIT
- CASSETTE UNIT
- OUTDOOR UNIT [TOP DISCHARGE]
- ODU — OUTDOOR UNIT [SIDE DISCHARGE]
- CEILING MOUNTED EXHAUST FAN
- FRESH AIR/EXHAUST AIR FAN [DUCT IN LINE]
- WALL MOUNTED FAN
- REFRIGERANT PIPES WITH INSULATION
- AC DRAIN PIPES WITH INSULATION
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- SUPPLY AIR DIFFUSER WITH DAMPER
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T/A	TO ABOVE
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FIRST FLOOR VENTILATION LAYOUT

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: R22387MOH
Date: October 2022
Architect : Zundabth Abdul Majid
Engineer :
Services : Nitheesh Kamrel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundhalingam & Mark Kenn Brito

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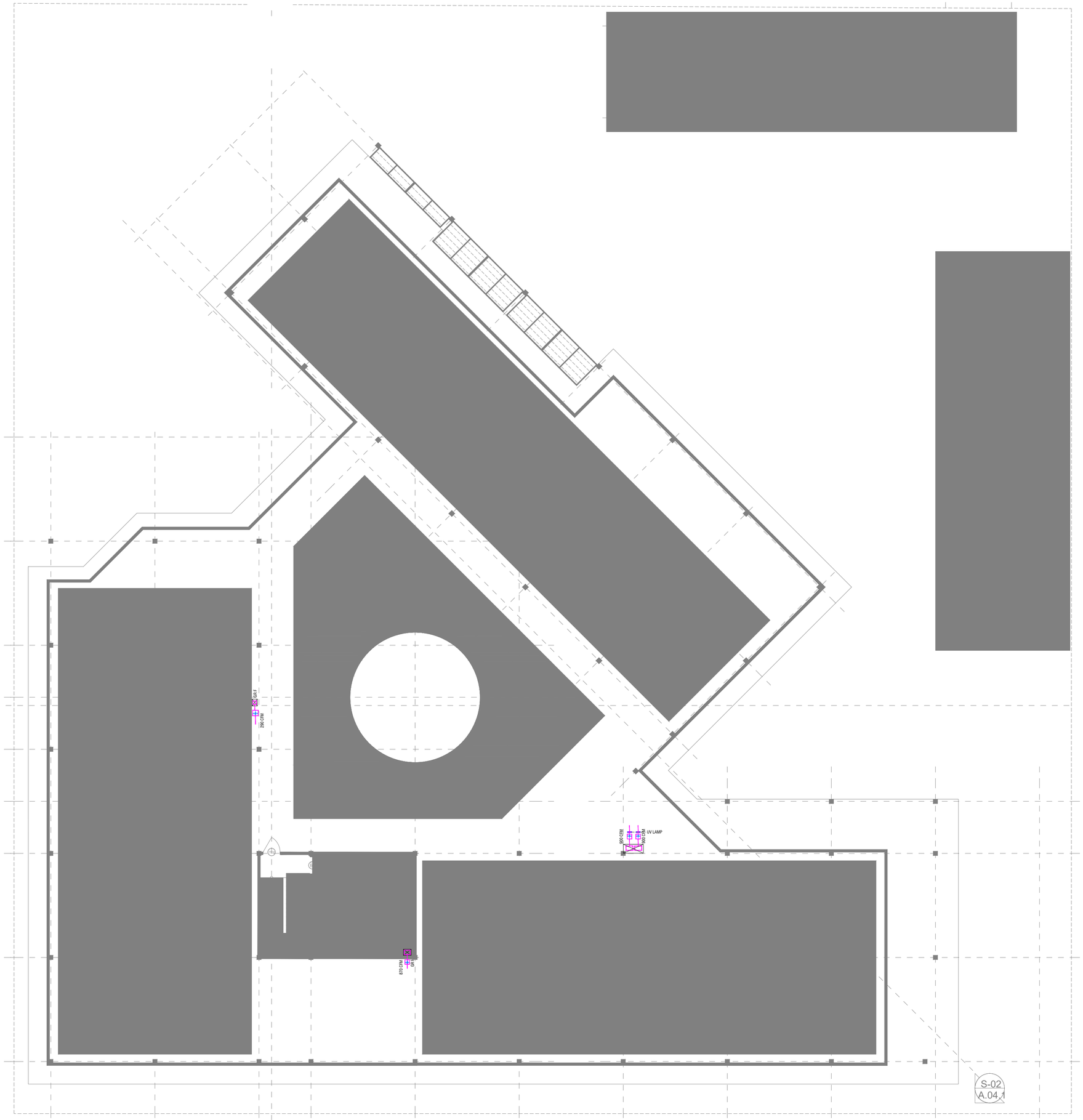
3rd floor, H. Azum, Ameeneemagu, Male'

Title: First Floor Ventilation Layout

Page: V-02 /03



ACV LEGEND & ABBREVIATION

AHU	AIR HANDLING UNIT
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	CASSETTE UNIT
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ODU	OUTDOOR UNIT [SIDE DISCHARGE]
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	WALL MOUNTED FAN
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T/B	TO BELOW
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-The minimum Energy Efficient Ratio [EER] value for AC Should be 3.5 [KW/KW]

-All ACV equipment should be anti corrosive coated

TERRACE FLOOR VENTILATION LAYOUT

SCALE 1:150

0 0.5 1 2 3 4

Hospital Design
Client: Ministry of Health

Project Number: R22387MOH
Date: October 2022

Architect : Zundath Abdul Majid
Engineer :
Services : Nitheesh Kamel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

Rev no	Date
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3rd floor, H. Azum, Ameeneemagu, Male'

Title: Terrace Floor Ventilation Layout

Page: V-03 /03

DRIVERS LOUNGE
S-02
A.04.1
CONSULTATION
PROCEDURE
TRIAGE
TREATMENT
RESUSCITATION
ER WAITING
TOILET
CRITICAL CARE
OBSERVATION/NURSE STN
PHARMACY
STORAGE
ARRIVAL & WAITING
CLEAN UTILITY
EQP STORE
PREPARATION
STAFF LOUNGE
DIRTY UTILITY
JANITOR
STERILE STORE
ECG/EEG
MEDICAL STORE
LABORATORY
sample collection
X-RAY
Circulation & Access
RECEPTION
GEN MED
OPD WAITING
CLEAN UTILITY
NURSE STN
STORES
TREATMENT RM
Dr. LOUNGE
PROCEDURE
OUTREACH
ROOF WATER FEATURE
10.00 %
BED RM
LIVING
Toilet
GARAGE
WORKSHOP
GEN STORES
clean
LAUNDRY
soiled
glass waste
infected waste
infected plastic
20ø CWL UG MED WASTE
gen waste
Autoclave equip. waste
15ø HOSE BIBB PROVISION FOR PLANTERS BOX
PLAY AREA
DIRTY UTILITY
CHANGING
LOCKERS
VACCINATION
FEEDING RM
HEALTH ED
EQUIPMENT
MEDICA
SCRUB
PRE OP
GEN STORE
STRETCHER
HOLDING
Nurse Stn
LADIES
GENTS
TOILET
Trolley Exchange
COUNSELING
PUBLIC HEALTH
UNIT HEAD
WASHING
THEATRE
SERVICES
DIRTY UTILITY
STERILE PREP
POST OP
ANAESTHETIC
CLEAN UTILITY
DIRTY UTILITY
CONSULTATION
TREATMENT
BIRTHING
TOILET
RECEPTION
FLUE CLINIC
AIR/GAS SUPPLY
SECURITY
PREP
MEDICINE STORE
CLEAN UTILITY
SUSPECTED ISOLATION
ISOLATION 2
ISOLATION 1
ANTE RM
NURSE STN
access controlled door
DOFF
PANTRY
DON
CHANGING
MEDICINE STORE
DIRTY UTILITY
UPS/UPS BATTERY/ELECTRICAL
630 CWL AC (TAP TO MUNICIPAL WATERSUPPLY)
15ø CWL
20ø CWL UG
32ø CWL UG
40ø CWL UG
50ø CWL UG
63ø CWL UG
15ø HWL
HB ø300mm HT
5.300

GROUND FLOOR PLUMBING LAYOUT

SCALE 1:150

Hospital Design
Client: Ministry of Health

Project Number: R22387MOH
Date: October 2022

Architect : Zunaibath Abdul Majid
Engineer : -
Services : Nitheesh Kamel Punarjan, Ibrahim Mohamed Evan, Sai arunaraj Sundhalalingam & Mark Kenn Brito

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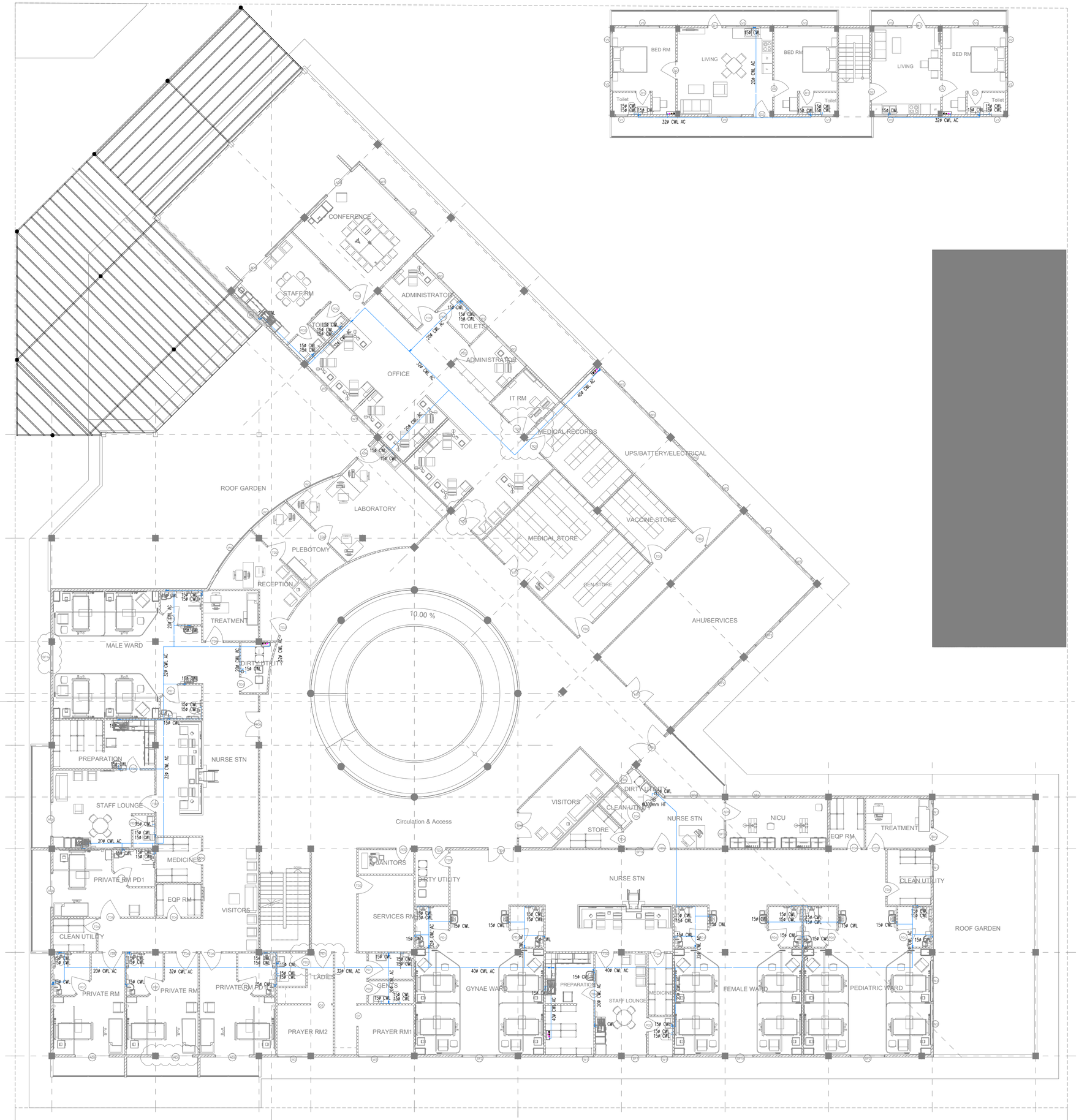
3rd floor, H. Asuns, Ameeneemagu, Male'

Title: Ground Floor Plumbing Layout

Page: PL-01 /02



FIRST FLOOR PLUMBING LAYOUT

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: R22287MOH
Date: October 2022

Architect : Zundaath Abdul Majid
Engineer : -
Services : Nitheesh Kamrel Punaiyan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

Rev no	Date
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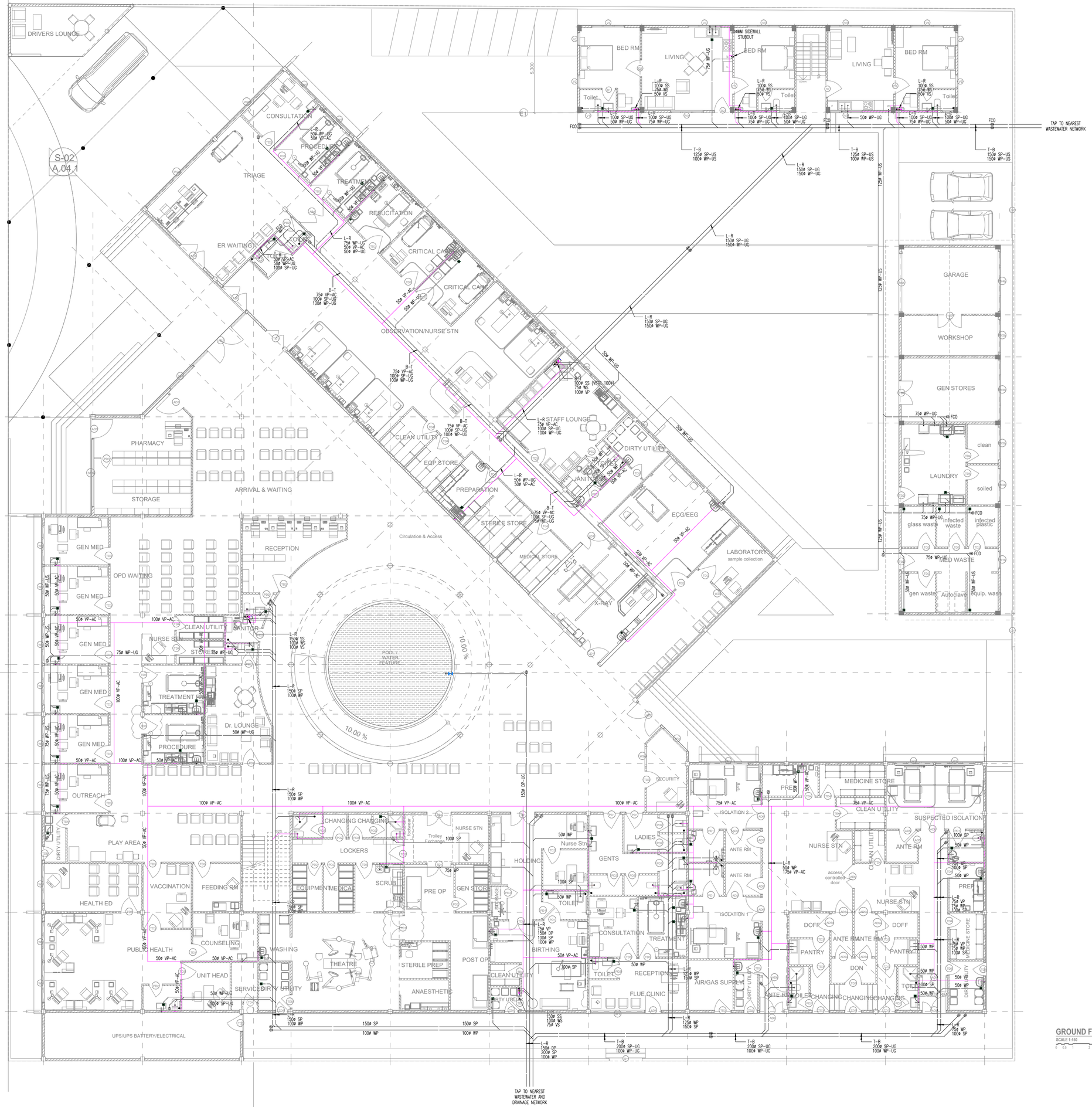
3rd floor, H. Azum, Ameeneemagu, Male'

Title: First Floor Plumbing Layout

Page: PL-02 /02



GROUND FLOOR DRAINAGE LAYOUT

SCALE 1:150

0m 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: R2238/MOH
Date: October 2022

Architect : Zunaidath Abdul Majid
Assistant : -
Services : Nitheesh Kamnel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundhalalingam & Mark Kevin Brito

Rev no	Date
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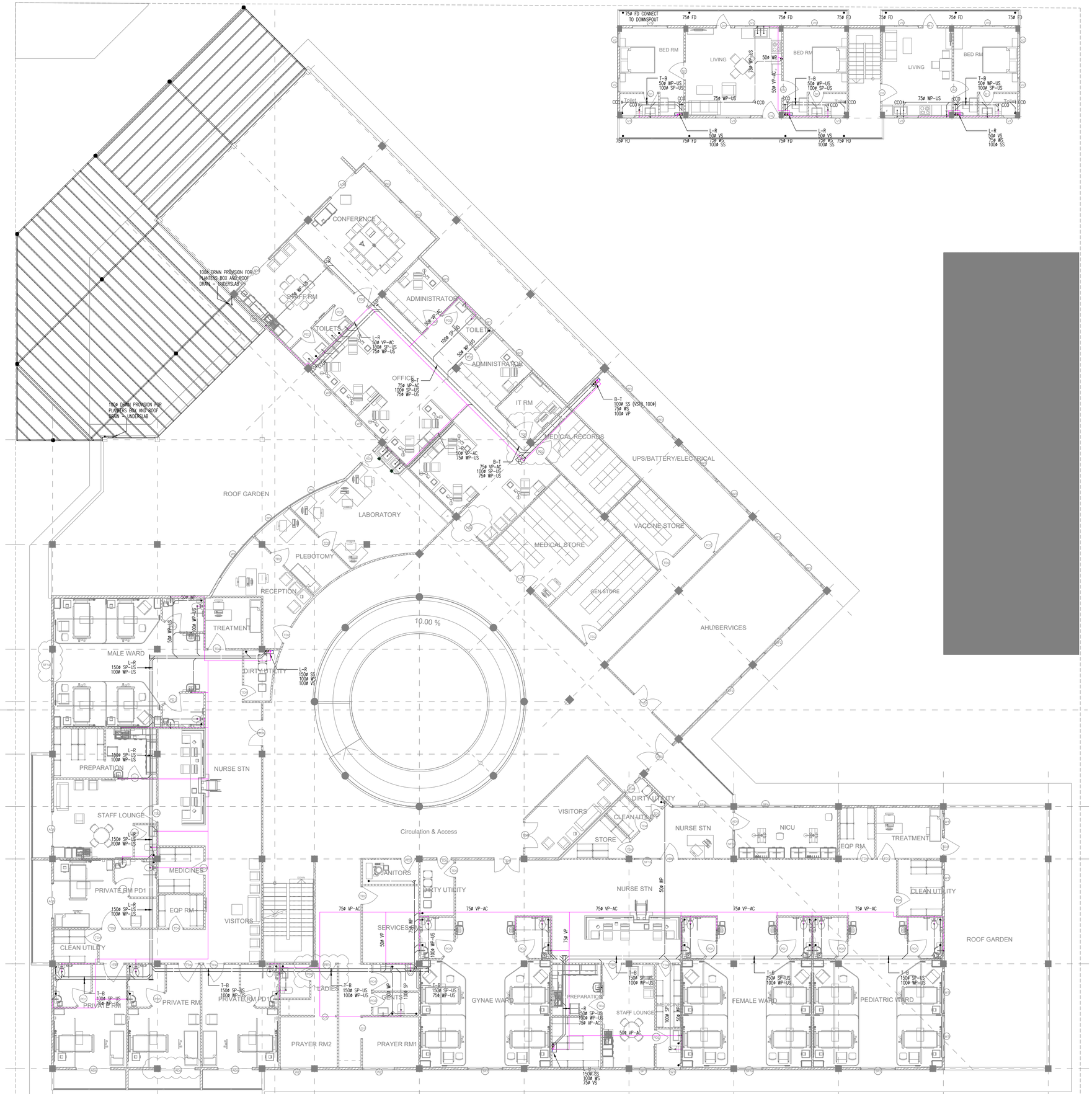
3rd floor, H. Asum, Ameenamagu, Male'

Title: Ground Floor Drainage Layout

Page: DR-01 /03



FIRST FLOOR DRAINAGE LAYOUT

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: R22387MOH
Date: October 2022

Architect : Zunaidath Abdul Majid
Engineer : Nitheesh Kamel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito
Services :

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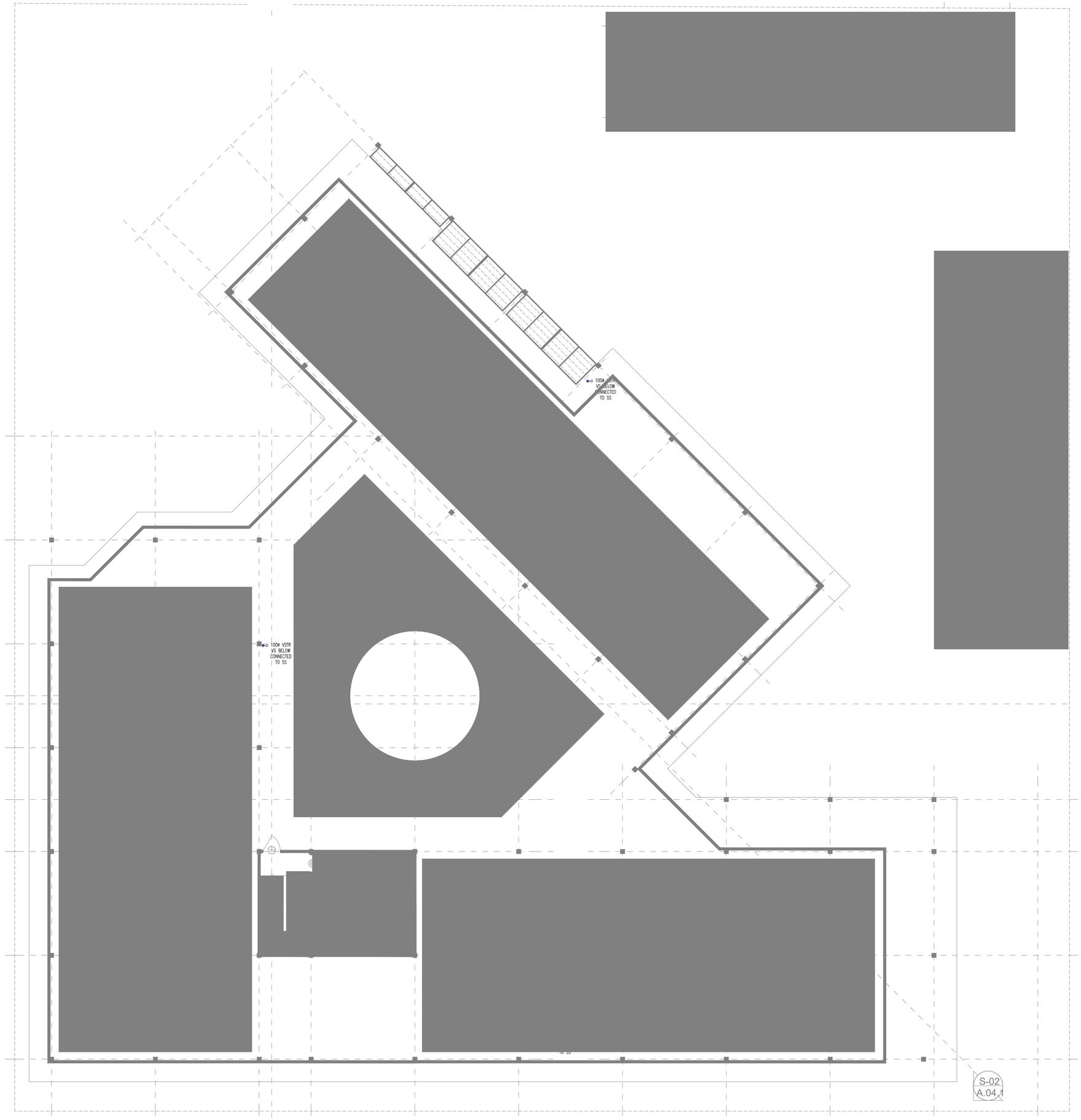
3rd floor, H. Azum, Ameeneemagu, Male'

Title: First Floor Drainage Layout

Page: DR-02 /03



TERRACE FLOOR DRAINAGE LAYOUT

SCALE 1:150

0 0.5 1 2 3 4

Hospital Design
Client: Ministry of Health

Project Number: R2287MOH
Date: October 2022

Architect : Zunlabth Abdul Majid
Engineer :
Services : Nitheesh Kamel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

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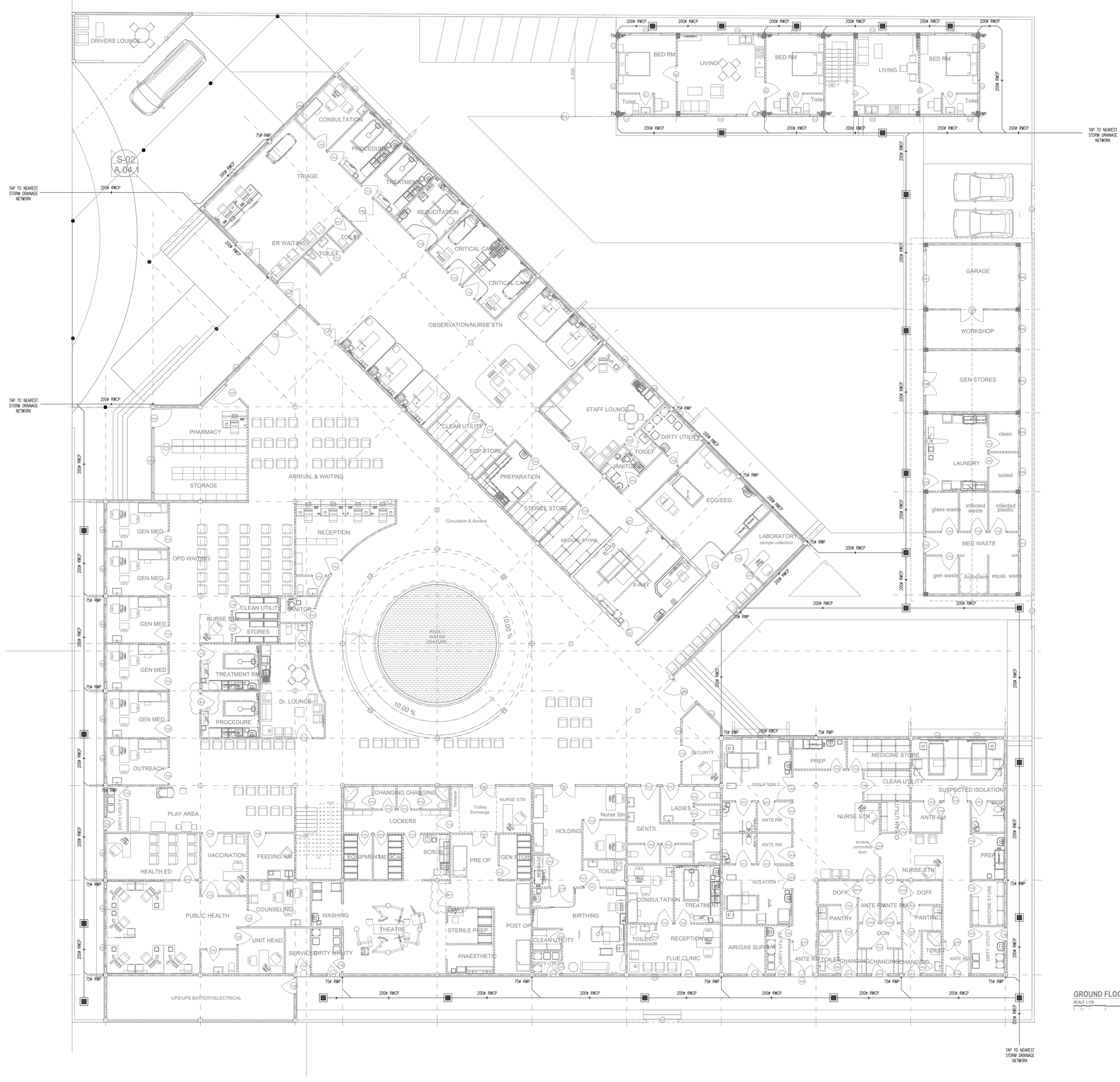
3rd floor, H. Azum, Ameeneemagu, Male'

Title: Terrace Floor Drainage Layout

Page: DR-03 /03



GROUND FLOOR STORM LAYOUT

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: R2238/MOH
Date: October 2022

Architect : Zunabath Abdul Majid
Engineer :
Services : Nitheesh Kamel Punarjan, Ibrahim Mohamed Evan, Sahananaj Sundhadilgam & Mark Kenn Brito

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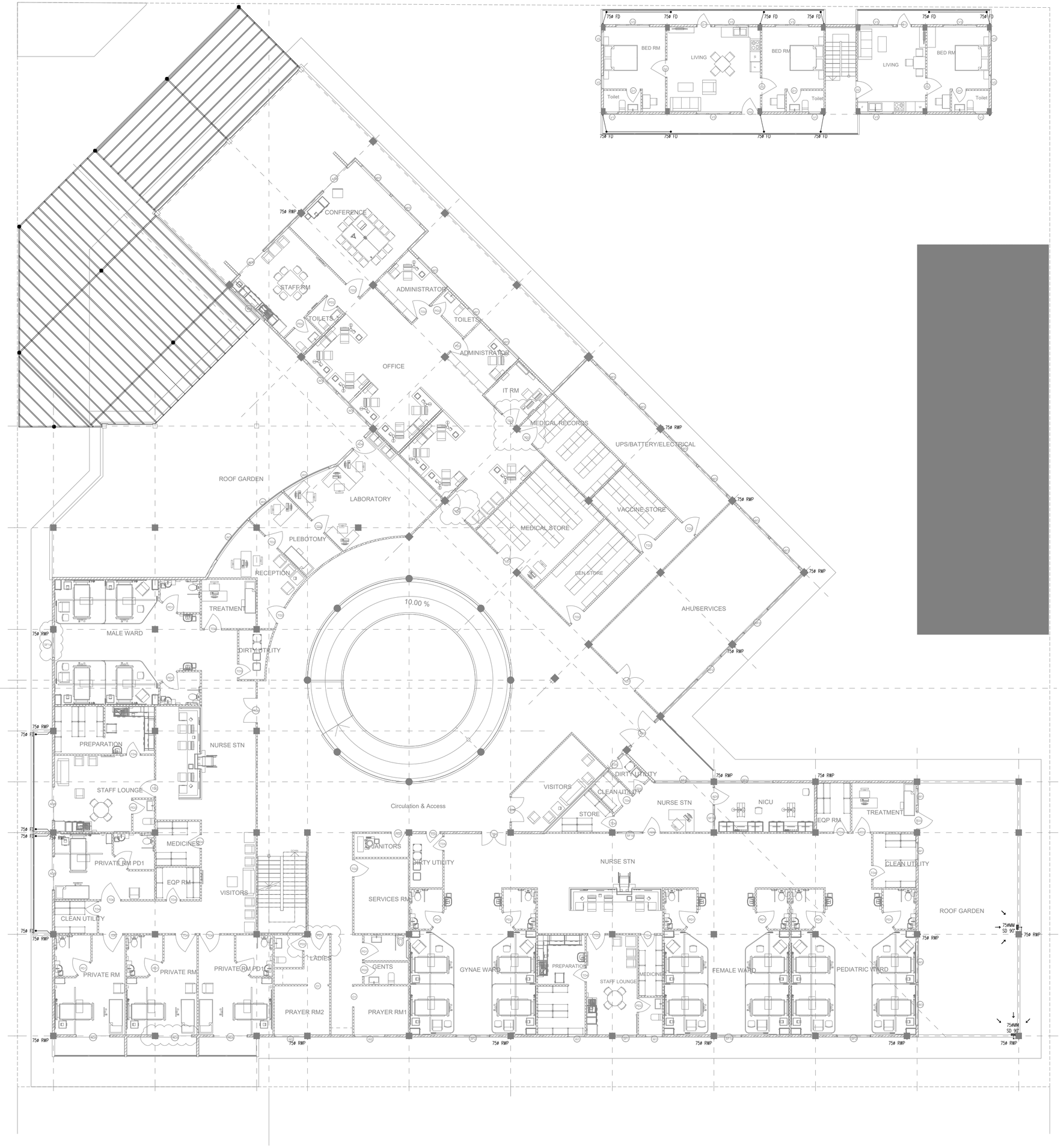
3rd Floor, H. Azum, Ameeneemagu, Male'

Title: Ground Floor Storm Layout

Page: ST01 /03



FIRST FLOOR STORM LAYOUT

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: R2218/MOH
Date: October 2022

Architect : Zunaibath Abdul Majid
Services : Nitheesh Karmel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sindhalalingam & Mark Kemi Brito

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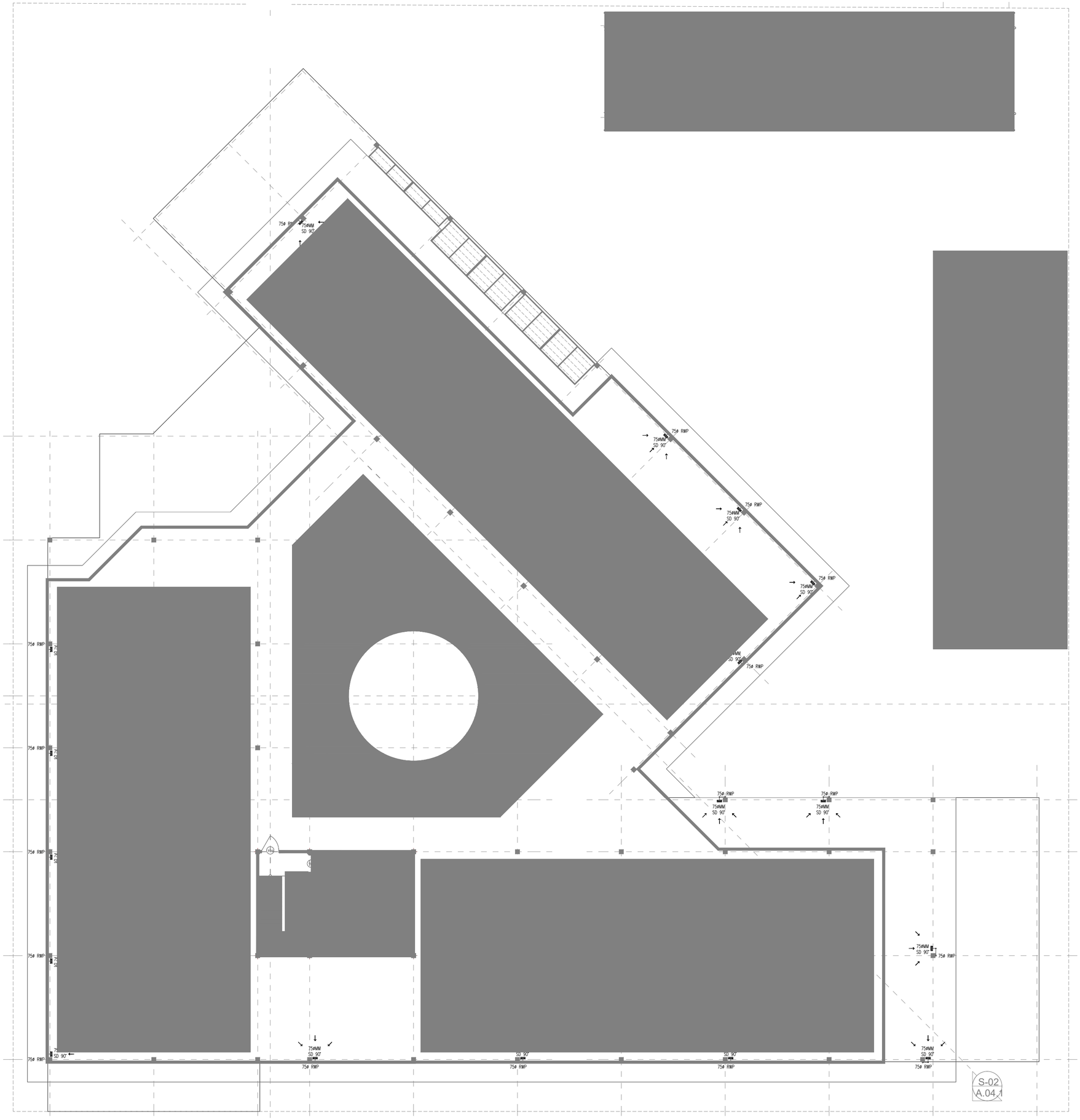
3rd floor, H. Azum, Ameeneemagu, Male'

Title: First Floor Storm Layout

Page: ST-02 /03



TERRACE FLOOR STORM LAYOUT

SCALE 1:150

0 0.5 1 2 3 4

Hospital Design
Client: Ministry of Health

Project Number: R2287MOH
Date: October 2022

Architect : Zunlabth Abdul Majid
Engineer : -
Services : Nitheesh Kamrel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

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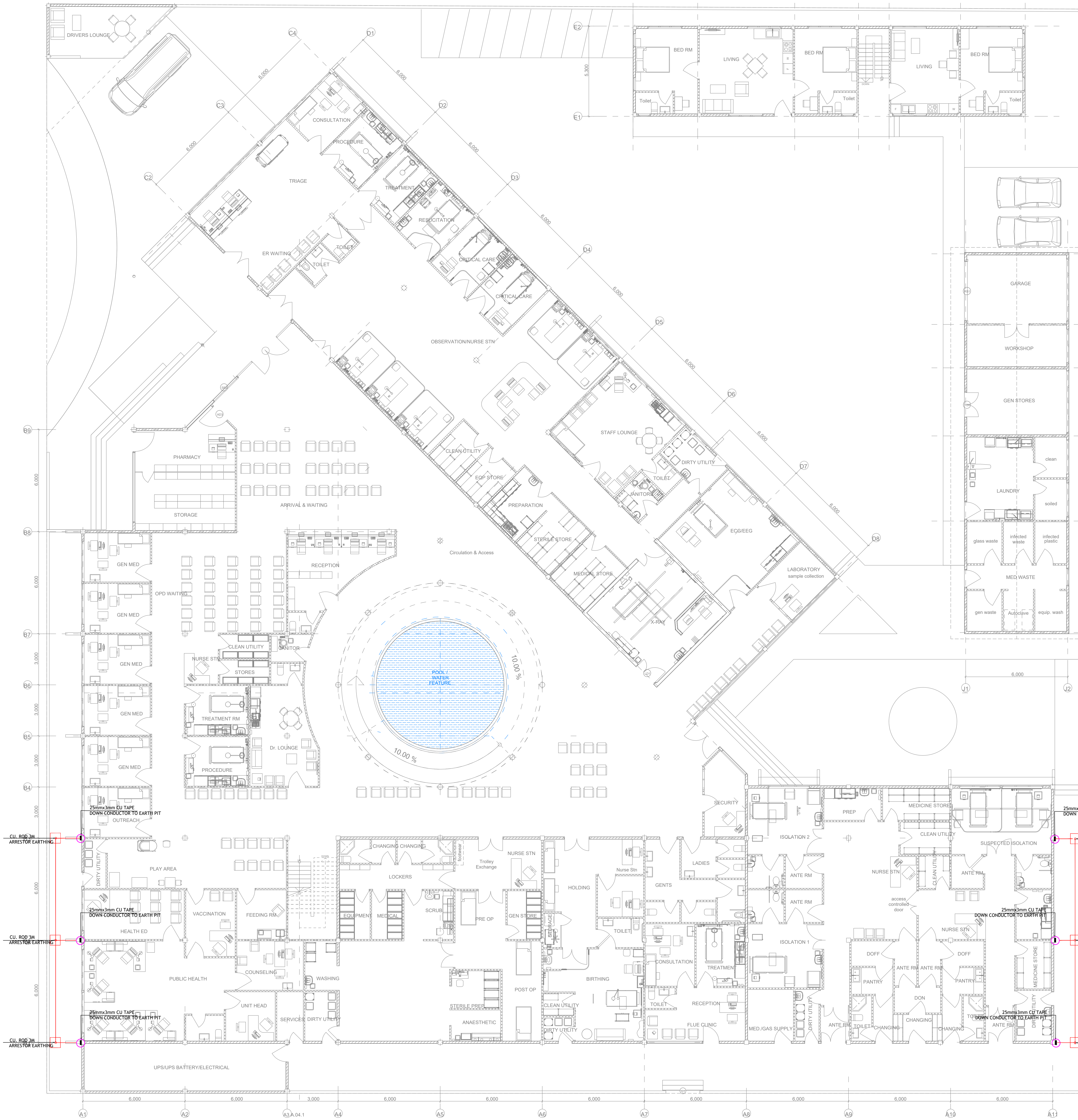
3rd floor, H. Azum, Ameeneemagu, Male'

Title: Terrace Floor Storm Layout

Page: ST-03 /03



GROUND FLOOR LIGHTING PROTECTION LAYOUT

SCALE 1:150

Hospital Design
Client: Ministry of Health

Project Number: R22387MOH
Date: October 2022
Architect : Zunabath Abdul Majid
Engineer :
Services : Nitheesh Karmel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundharalingam & Mark Kenn Brito

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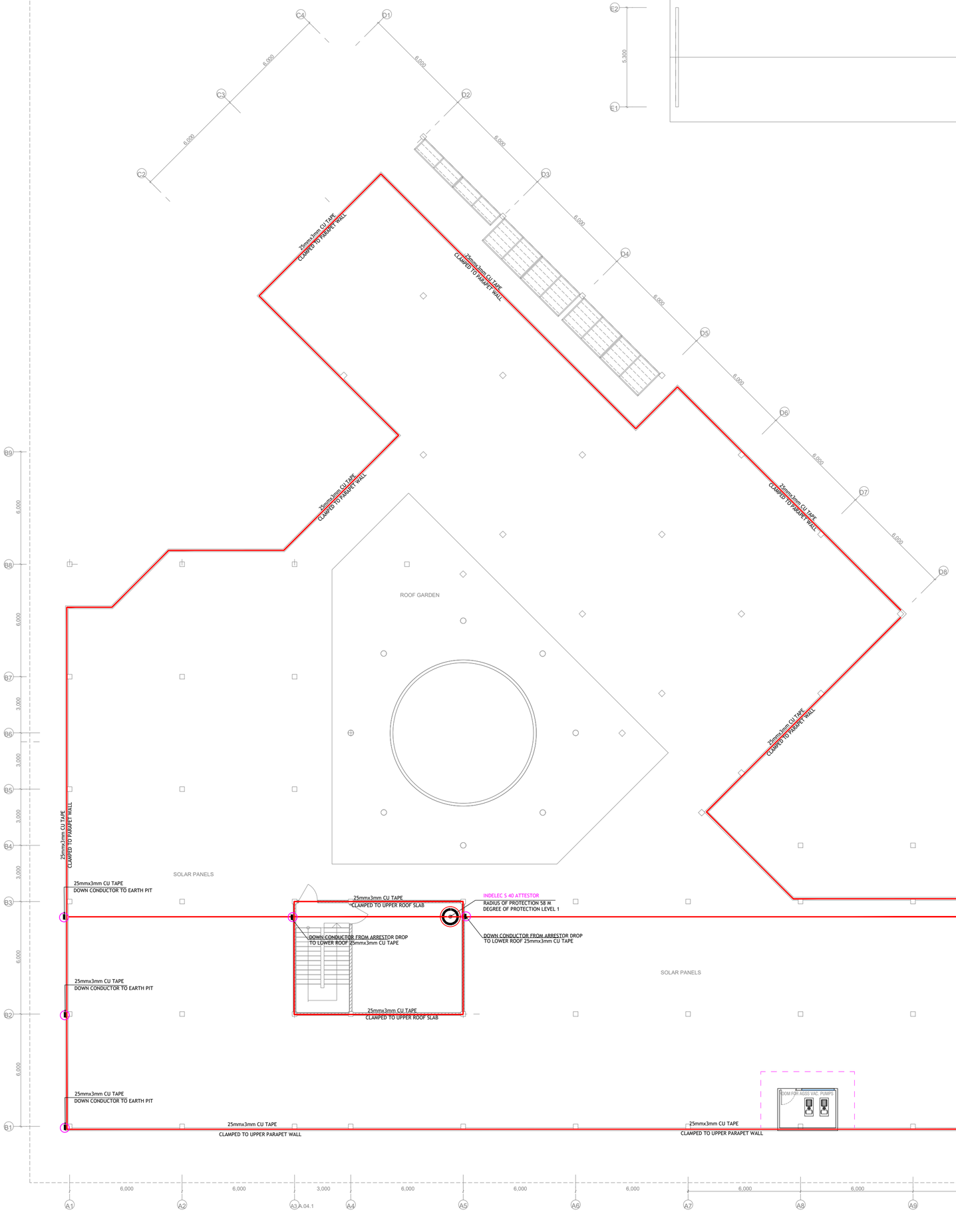
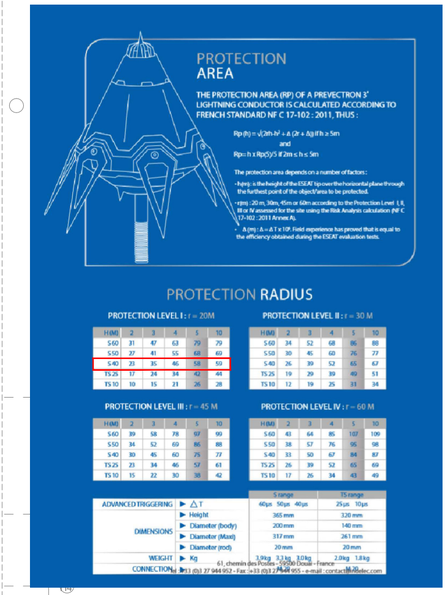
w : www.riyan.com.mv
3rd floor, H. Azum, Ameeneemagu, Male'

Title: Ground Floor Lighting Protection Layout

Page: LP-01 /03





PROTECTION RADIUS

PROTECTION LEVEL I : r = 20M

H(M)	2	3	4	5	10
S 60	31	47	63	79	79
S 50	27	41	55	69	69
S 40	23	35	46	58	59
TS 25	17	24	34	42	44
TS 10	10	15	21	26	28

PROTECTION LEVEL II : r = 30 M

H(M)	2	3	4	5	10
S 60	34	52	68	86	88
S 50	30	45	60	75	77
S 40	26	39	52	65	67
TS 25	19	29	39	49	51
TS 10	12	19	25	31	34

PROTECTION LEVEL III : r = 45 M

H(M)	2	3	4	5	10
S 60	39	58	78	97	99
S 50	34	52	69	86	88
S 40	30	45	60	75	77
TS 25	23	34	46	57	63
TS 10	15	22	30	38	42

PROTECTION LEVEL IV : r = 60 M

H(M)	2	3	4	5	10
S 60	43	64	85	107	109
S 50	38	57	76	95	98
S 40	33	50	67	84	87
TS 25	26	39	52	65	69
TS 10	17	26	34	43	49

		Vitesse	TS Vitesse
ADVANCED TRIGGERING	▶ ΔT	60µs 90µs 40µs	25µs 10µs
DIMENSIONS	▶ Height	365 mm	320 mm
	▶ Diameter (body)	200 mm	140 mm
	▶ Diameter (Mast)	317 mm	241 mm
	▶ Diameter (rod)	20 mm	20 mm
WEIGHT	▶ Kg	3,3Kg 3,1 kg 3,0 kg	2,0kg 1,8 kg
CONNECTION	▶	M	M

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TERRACE FLOOR LIGHTING PROTECTION LAYOUT

SCALE 1:150

0 0.5 1 2 3 4 5

Hospital Design
Client: Ministry of Health

Project Number: R2238/MOH
Date: October 2022
Architect : Zunabath Abdul Majid
Engineer :
Services : Nitheesh Kamel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sundhalingam & Mark Kenn Brito

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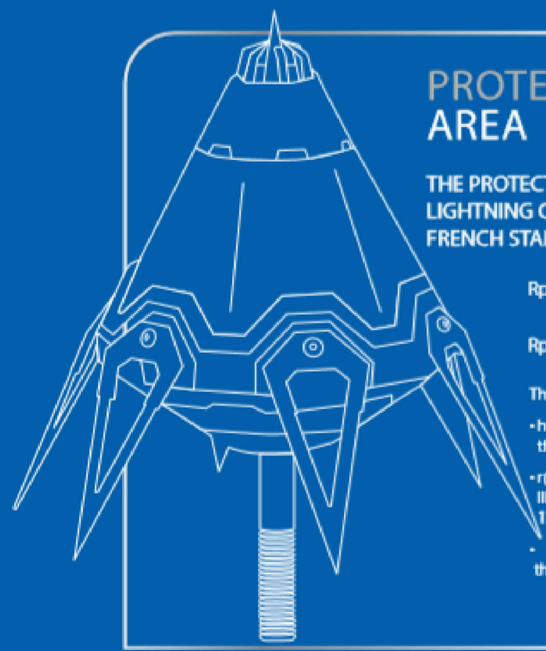
3rd floor, H. Azum, Ameeneemagu, Male'

Title: Terrace Floor
Lighting Protection Layout

Page: LP-02 /03



PROTECTION AREA

THE PROTECTION AREA (RP) OF A PREVECTRON 3° LIGHTNING CONDUCTOR IS CALCULATED ACCORDING TO FRENCH STANDARD NF C 17-102 : 2011, THUS :

$Rp(h) = \sqrt{(2rh-h^2 + \Delta(2r+\Delta))}$ if $h \geq 5m$

and

$Rp = h \times Rp(5)/5$ if $2m \leq h \leq 5m$

The protection area depends on a number of factors :

- h(m) : is the height of the ESEAT tip over the horizontal plane through the furthest point of the object/area to be protected.
- r(m) : 20 m, 30m, 45m or 60m according to the Protection Level I, II, III or IV assessed for the site using the Risk Analysis calculation (NF C 17-102 : 2011 Annex A).
- Δ (m) : $\Delta = \Delta T \times 10^6$. Field experience has proved that is equal to the efficiency obtained during the ESEAT evaluation tests.

PROTECTION RADIUS

PROTECTION LEVEL I : r = 20M

H (M)	2	3	4	5	10
S 60	31	47	63	79	79
S 50	27	41	55	68	69
S 40	23	35	46	58	59
TS 25	17	24	34	42	44
TS 10	10	15	21	26	28

PROTECTION LEVEL II : r = 30 M

H (M)	2	3	4	5	10
S 60	34	52	68	86	88
S 50	30	45	60	76	77
S 40	26	39	52	65	67
TS 25	19	29	39	49	51
TS 10	12	19	25	31	34

PROTECTION LEVEL III : r = 45 M

H (M)	2	3	4	5	10
S 60	39	58	78	97	99
S 50	34	52	69	86	88
S 40	30	45	60	75	77
TS 25	23	34	46	57	61
TS 10	15	22	30	38	42

PROTECTION LEVEL IV : r = 60 M

H (M)	2	3	4	5	10
S 60	43	64	85	107	109
S 50	38	57	76	95	98
S 40	33	50	67	84	87
TS 25	26	39	52	65	69
TS 10	17	26	34	43	49

		S range	TS range
ADVANCED TRIGGERING	▶ ΔT	60µs 50µs 40µs	25µs 10µs
DIMENSIONS	▶ Height	365 mm	320 mm
	▶ Diameter (body)	200 mm	140 mm
	▶ Diameter (Maxi)	317 mm	261 mm
	▶ Diameter (rod)	20 mm	20 mm
WEIGHT	▶ Kg	3.9 kg 3.3 kg 3.0 kg	2.0 kg 1.8 kg
CONNECTION	▶	M 20	M 20

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LIGHTING PROTECTION LAYOUT NOTES

SCALE 1:150

0 0.5 1 2 3 4

Hospital Design
Client: Ministry of Health

Project Number: R2228/MOH
Date: October 2021
Architect : Zunbath Abdul Majid
Reviewer :
Services : Nitheesh Karmel Punarjan, Ibrahim Mohamed Evan, Saravanaraj Sandhanalingam & Mark Kenn Brito

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3rd floor, H. Azum, Ameeneemagu, Male'

Title: Lighting Protection Notes

Page: LP-03 /03