

Funded By



**OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENEVE**

PROJECT Title: Construction of Laboratory Building in Kilo General Hospital

PROJECT Location: KILO General Hospital – KILO District

Ibb Government / Yemen

Date:

July ,2025

Architictural Drawings

No	Drawing Title	No	Drawing Title
Arch-001	Top 3D View	Arch-011	Doors & Windows Plan
Arch-002	South-East View	Arch-012	Internal Dimension
Arch-003	North-West View	Arch-013	North Elevation
Arch-004	North-East View	Arch-014	Doors & Windows Detailing
Arch-005	South West View	Arch-015	South elevation
Arch-006	Laboratory General Plan	Arch-016	Eastern elevation
Arch-007	Location of Existing Steel Structure	Arch-017	Western Elevation
Arch-008	General Plan 1	Arch-018	SECTION A-A
Arch-009	General Plan 2	Arch-019	SECTION B-B
Arch-010	Laboratory Architectural Plan		

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Table of Content

DRAWING Type:

Architectural Drawings

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

MSF

DATE:

July ,2025

DWG.NO:

Arch-000



Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONNEL DE GENÈVE

PROJECT Title:

Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Top 3D View

DRAWING Type:

Architectural Drawings

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

MSF

DATE:

July ,2025

DWG NO:

Arch-001



Funded by:



MEDECINS
SANS FRONTIERES
OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:

Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

South-East View

DRAWING Type:

Architectural Drawings

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

MSF

DATE:

July ,2025

DWG.NO:

Arch-002



Funded by:



MEDECINS
SANS FRONTIERES
OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:

Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

North-West View

DRAWING Type:

Architectural Drawings

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

MSF

DATE:

July ,2025

DWG.NO:

Arch-003



Funded by:



MEDECINS
SANS FRONTIERES
OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:
Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

North-East View

DRAWING Type:

Architectural Drawings

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

MSF

DATE:

July ,2025

DWG.NO:

Arch-004



Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

South West View

DRAWING Type:

Architectural Drawings

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

MSF

DATE:

July ,2025

DWG.NO:

Arch-005



Funded by:



MEDECINS
SANS FRONTIERES
OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:

Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Laboratory General Plan

DRAWING Type:

Architectural

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

Arch-006



Existing Lab (Steel Structure)

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:
Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

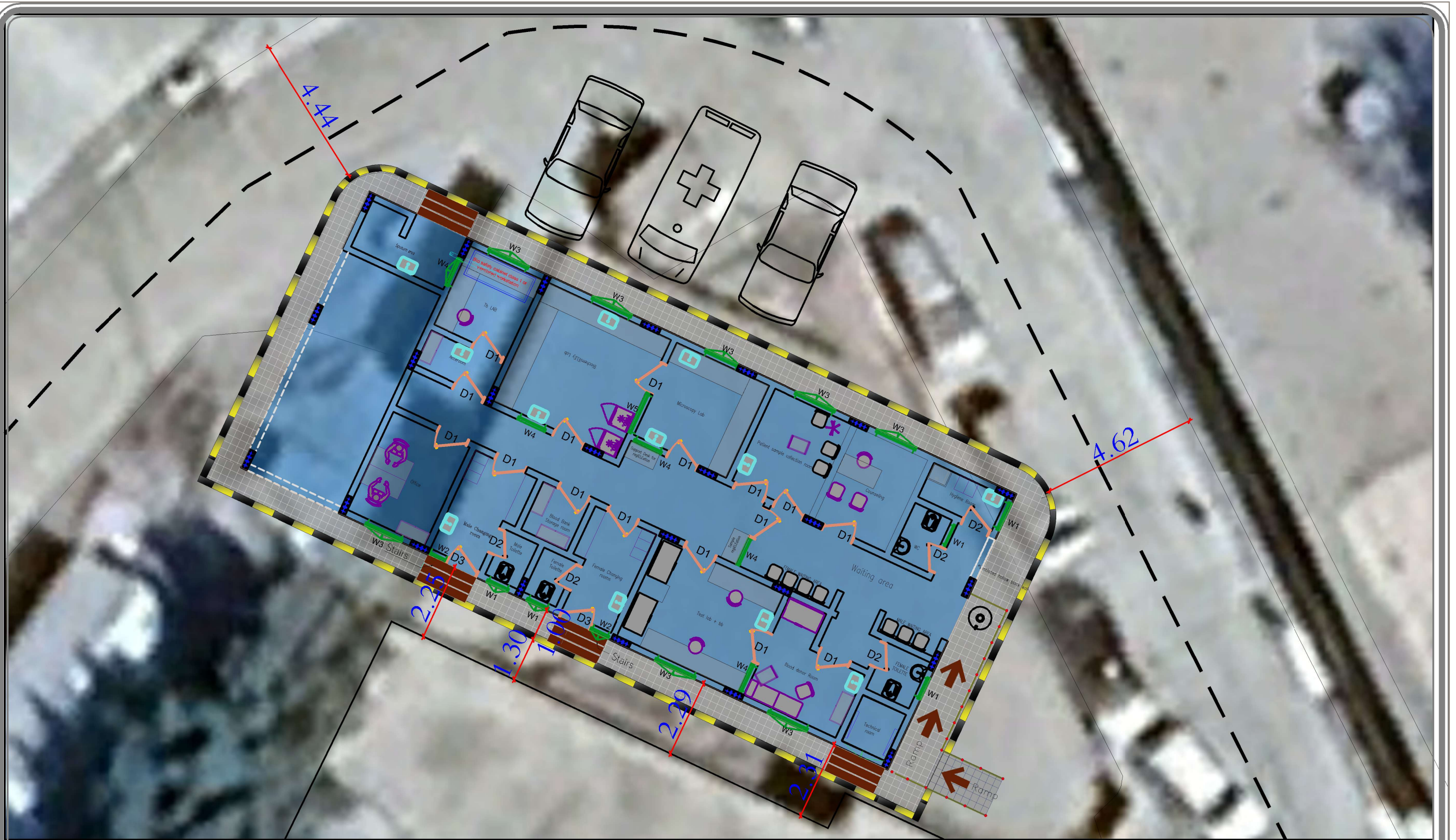
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Existing Lab (Steel Structure)

DRAWING Type:
Architectural

Drawing Status: SCALE: As Shown
Design Drawing Paper Size:

DESIGNED BY : MSF
DATE: July ,2025

DWG.NO:
Arch-007



Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

General Plan 1

DRAWING Type:

Architectural

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

June ,2025

DWG.NO:

Arch-008



Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

General Plan 1

DRAWING Type:

Architectural

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

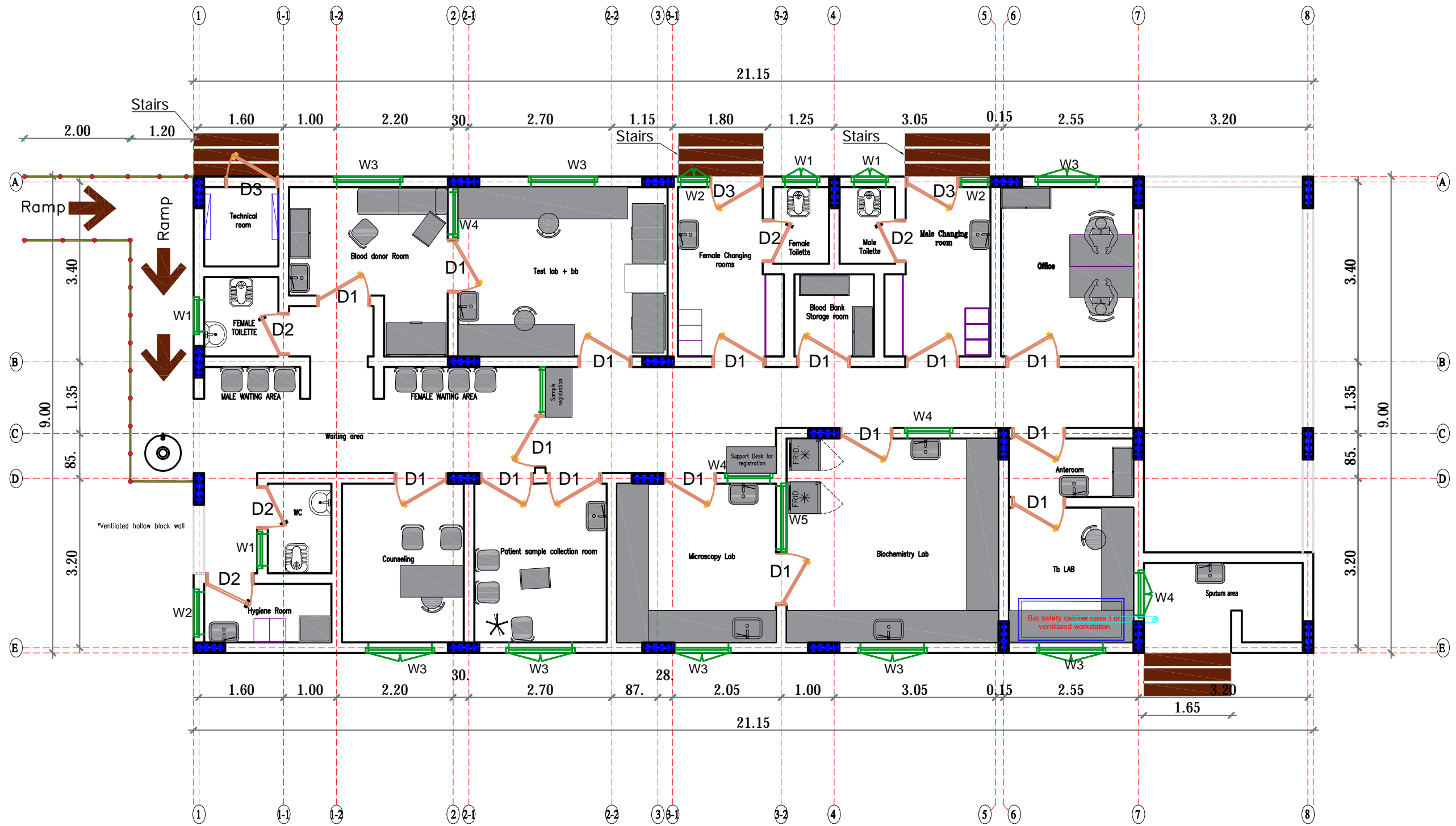
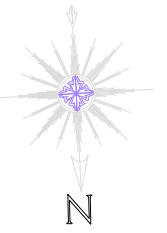
Paper Size:

DATE:

June ,2025

DWG.NO:

Arch-009



Laboratory Architectural Plan

Funded by:



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SANS FRONTIERES
OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:
Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

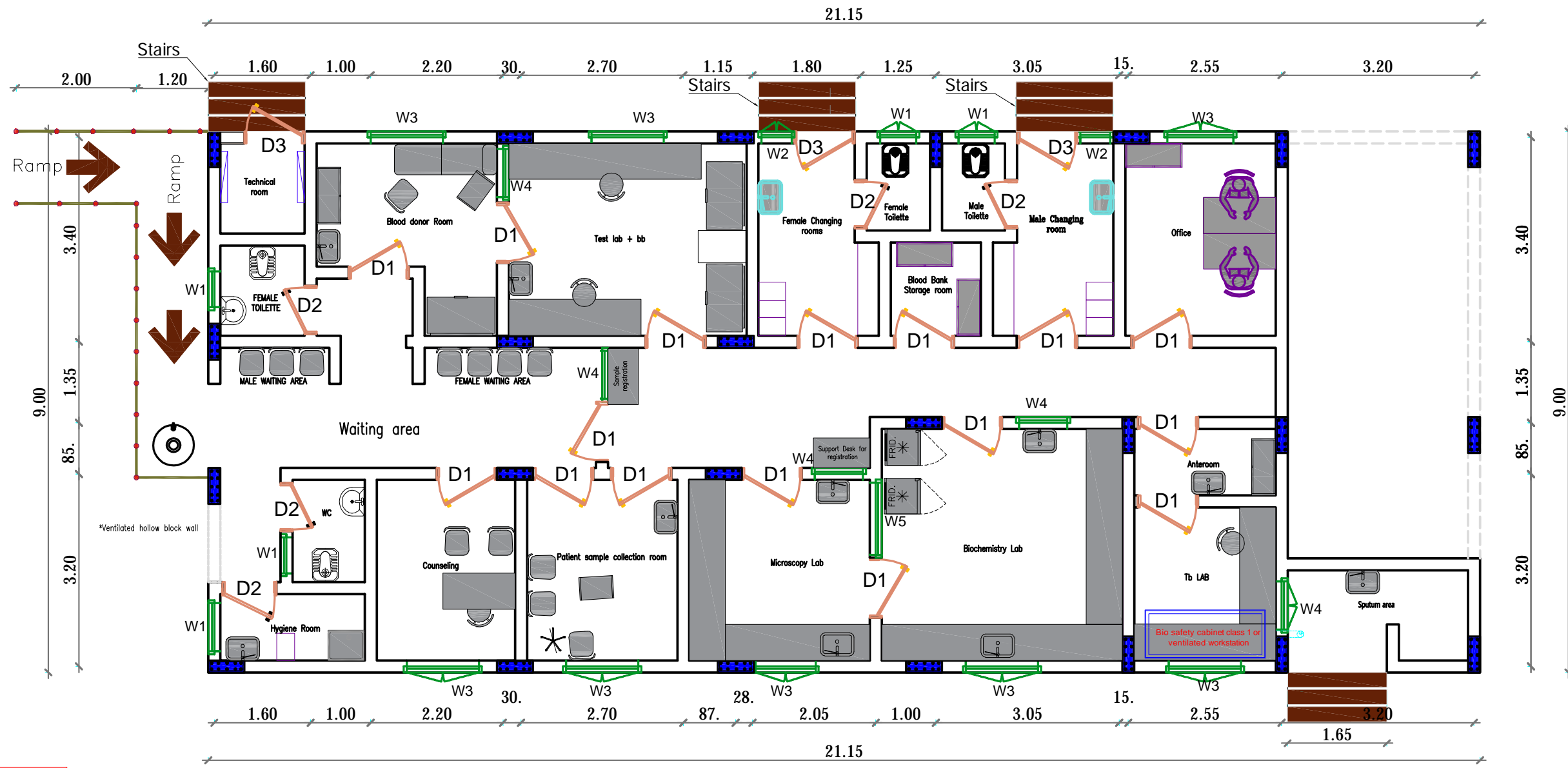
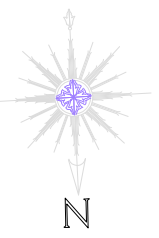
DRAWING TITLE:
Laboratory Architectural Plan

DRAWING Type:
Architectural

Drawing Status: SCALE: As Shown
Design Drawing Paper Size:

DESIGNED BY : MSF
DATE: July ,2025

DWG.NO:
Arch-010



Window Table				
Title	No	Dim (cm)		Tayp
		W	H	
W1	5	60	100	Aluminum
W2	2	40	120	Aluminum
W3	8	120	200	Aluminum
W4	5	80	150	Aluminum "Sliding Sides"
W5	1	120	150	Aluminum "Sliding Sides"

Door Table				
Title	No	Dim (cm)		Tayp
		W	H	
D1	16	100	200	Aluminum
D2	5	80	200	Aluminum
D3	3	100	200	Steel

Doors & Windows

Funded by:



PROJECT Title:
Construction of Laboratory Building in Kilo General Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:
Doors & Windows Plan

DRAWING Type:
Architectural

Drawing Status: SCALE: As Shown
Design Drawing Paper Size:

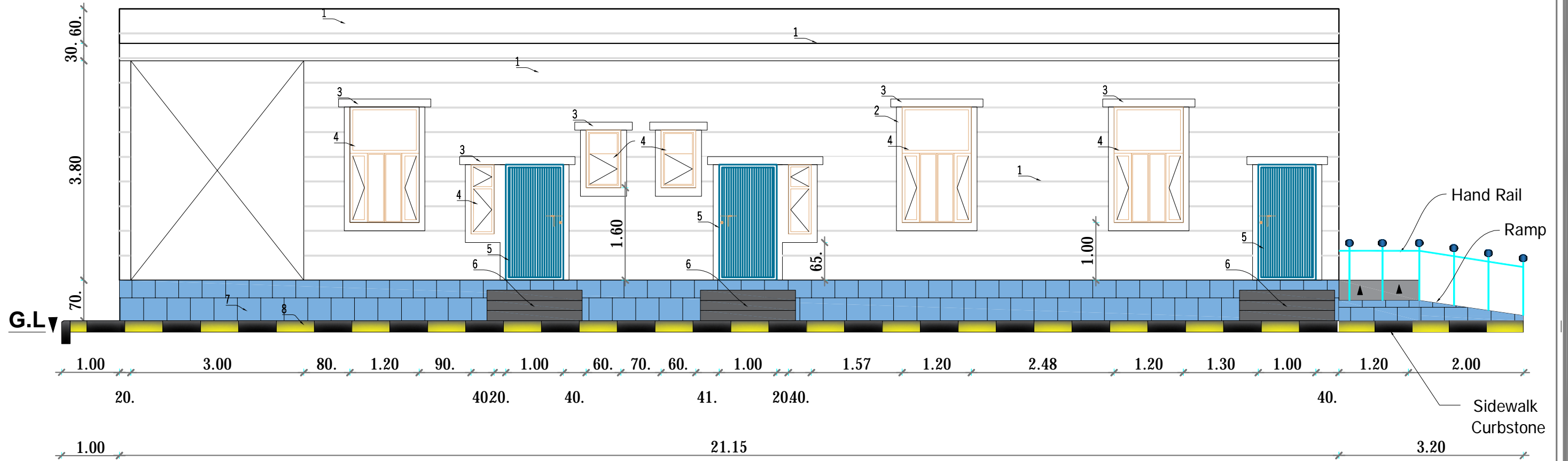
DESIGNED BY : MSF
DATE: July ,2025

DWG.NO:
Arch-011

Facade cladding : تكسيات الواجهات :

- ٥ Galvanized Tubes Steel Door ابواب حديد مجلفن رص
- ٦ Stairs درج
- ٧ Black hanash Stones Building مباني حجر حيش اسود
- ٨ Protection Sidewalk رصيف حماية جانبي

- ١ Cement Plastering 2.5cm + Acrylic Paints تلابيس اسمنتية 2.5 سم + دهان مقاوم للضروف الجوية (الجرية) (الجرية)
- ٢ Cement Plastering "with 5cm raised" + Acrylic Paints تلابيس اسمنتية بارز 5 سم + دهان (الجرية)
- ٣ RC beam "with 15cm raised" +Plastering+Acrylic Paints كرتيش خرستاني مسلح بارز 15 سم + تلابيس (دهان) (الجرية)
- ٤ Aluminum Window (Brown Type) نوافذ الومنيوم بني



North elevation

Funded by:



PROJECT Title:
Construction of Laboratory Building in Kilo General Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:
North Elevation

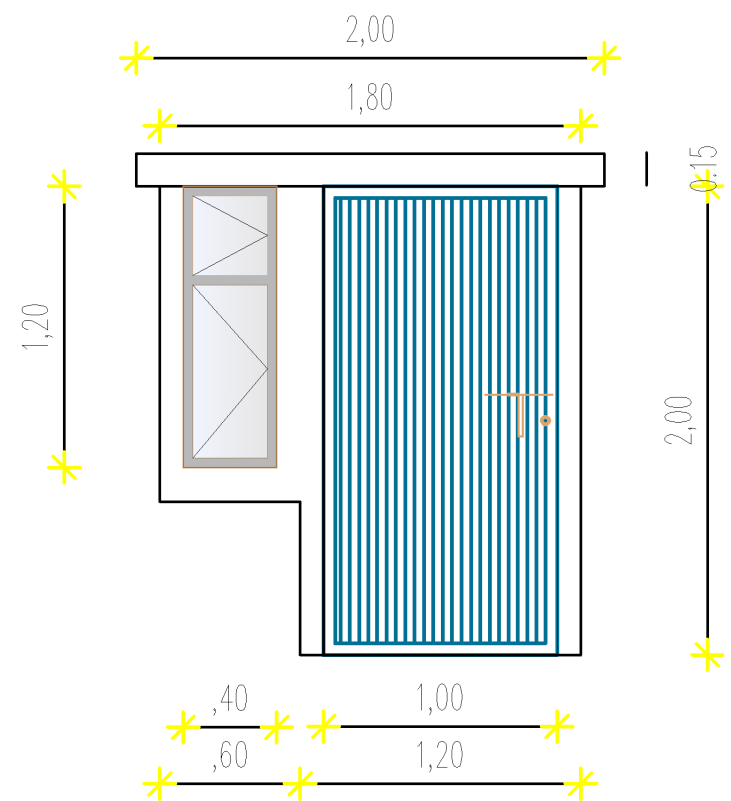
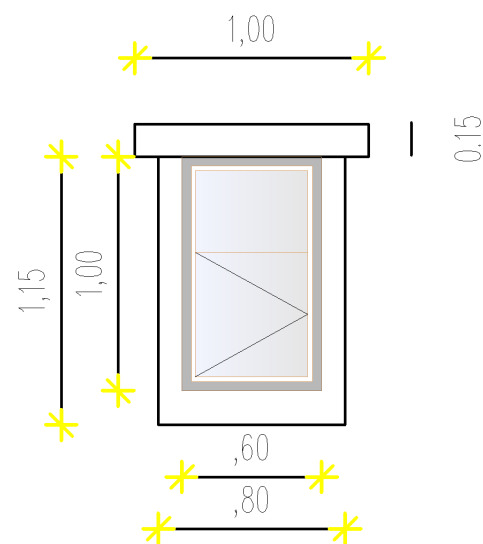
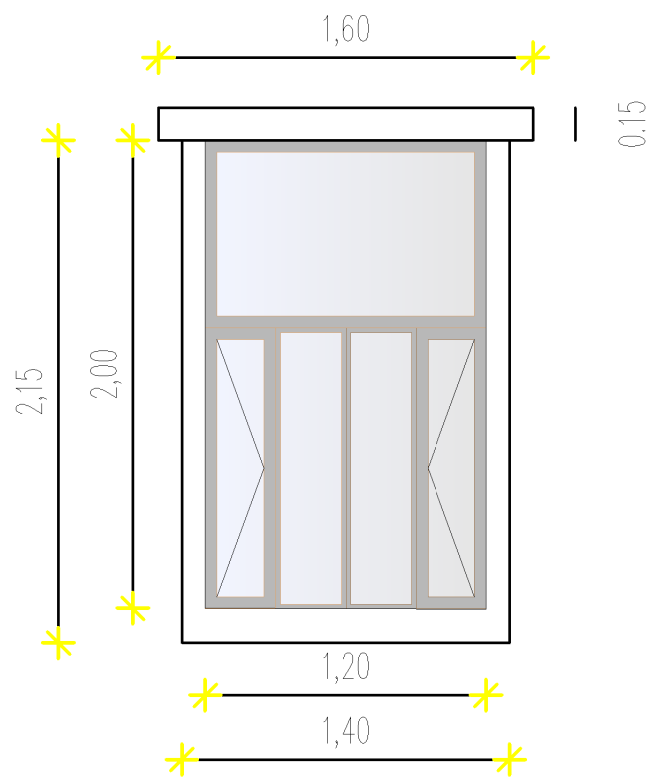
DRAWING Type:
Architectural

Drawing Status: Design Drawing
SCALE: As Shown
Paper Size:

DESIGNED BY : MSF
DATE: July ,2025

DWG.NO:

Arch-013



Doors & Windows Detailing

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Doors & Windows Detailing

DRAWING Type:

Architectural

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

MSF

DATE:

July ,2025

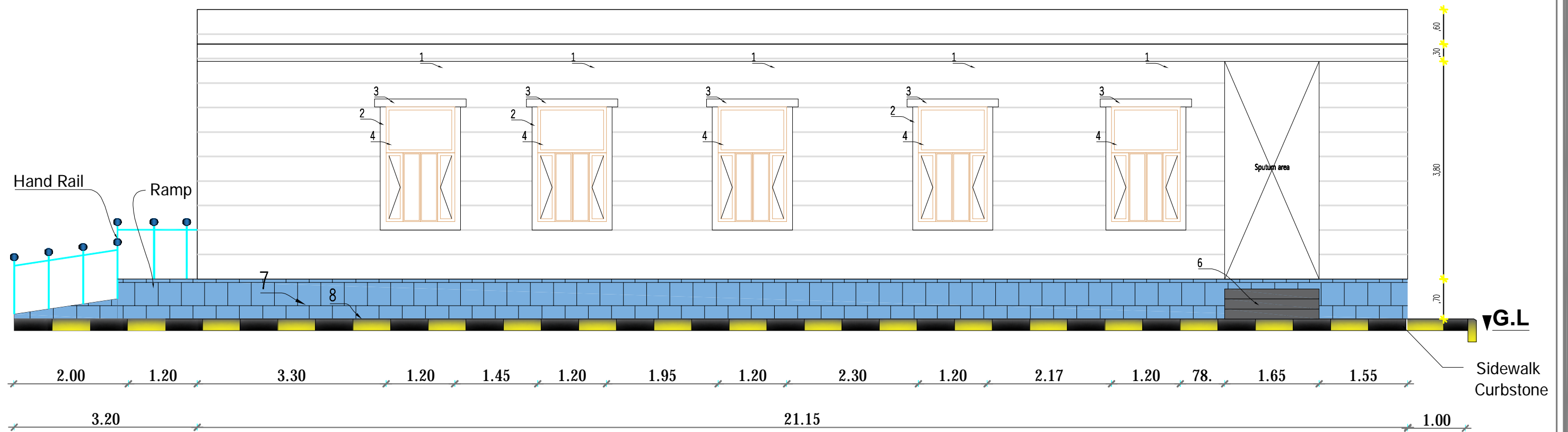
DWG.NO:

Arch-014

Facade cladding : تكسيات الواجهات

- ٥ Galvanized Tubes Steel Door
ابواب حديد مجلفن رص
- ٦ Stairs
درج
- ٧ Black hanash Stones Building
مباني حجر حيش اسود
- ٨ Protection Sidewalk
رصيف حماية جانبي

- ١ Cement Plastering 2.5cm + Acrylic Paints
تلاييس اسمنتية 2.5 سم + دهان مقاوم للضروف الجوية (الكريلك)
- ٢ Cement Plastering "with 5cm raised" + Acrylic Paints
تلاييس اسمنتية بارز 5 سم + دهان (الكريلك)
- ٣ RC beam "with 15cm raised" +Plastering+Acrylic Paints
كرتيش خرساني مسلح بارز 15 سم + تلاييس دهان (الكريلك)
- ٤ Aluminum Window (Brown Type)
نوافذ الومنيوم بني



South elevation

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:
Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:
South elevation

DRAWING Type:
Architectural

Drawing Status: SCALE: As Shown
Design Drawing Paper Size:

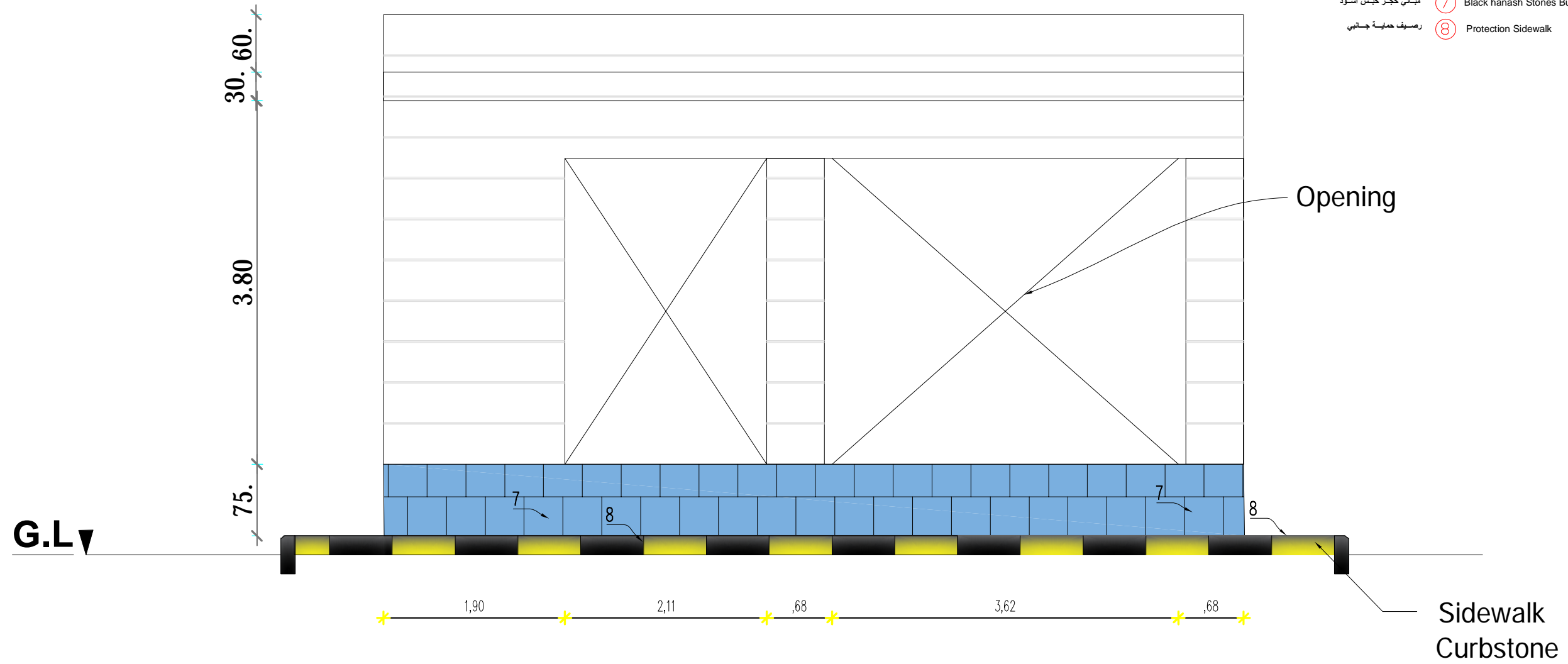
DESIGNED BY : DATE:
MSF July ,2025

DWG.NO:

Arch-015

تكسيات الواجهات : Facade cladding :

- ① Cement Plastering 2.5cm + Acrylic Paints
- ② Cement Plastering "with 5cm raised" + Acrylic Paints
- ③ RC beam "with 15cm raised" +Plastering+Acrylic Paints
- ④ Aluminum Window (Brown Type)
- ⑤ Galvanized Tubes Steel Door
- ⑥ Stairs
- ⑦ Black hanash Stones Building
- ⑧ Protection Sidewalk



Eastern elevation

Funded by:

MEDECINS SANS FRONTIERES
 OPERATING CENTER GENEVA
 CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:
 Construction of Laboratory Building in Kilo General Hospital

PROJECT Location:
 KILO General Hospital – KILO District
 Ibb Government / Yemen

DRAWING TITLE:
 Eastern elevation

DRAWING Type:
 Architectural

Drawing Status:
 Design Drawing

SCALE: As Shown
Paper Size:

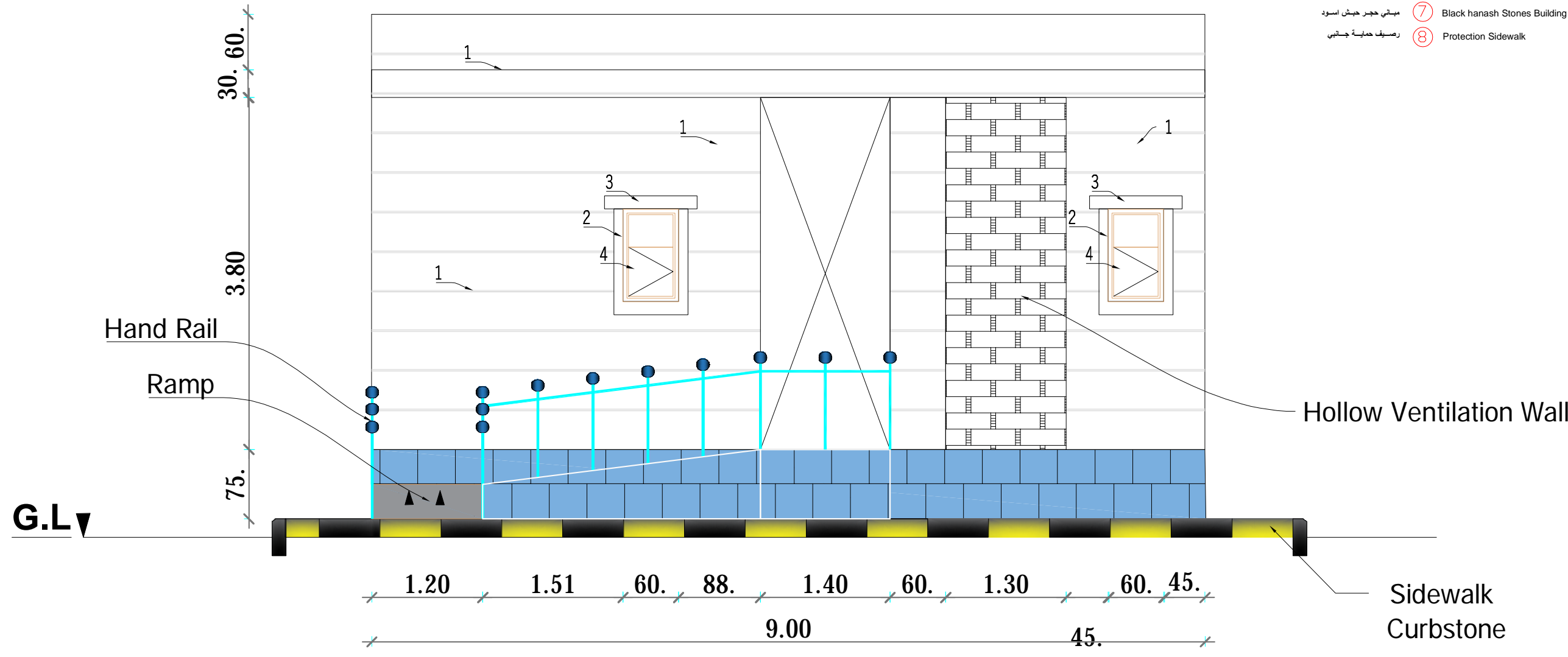
DESIGNED BY :
MSF

DATE:
 July ,2025

DWG.NO:
Arch-016

تكسيات الواجهات : Facade cladding :

- ① Cement Plastering 2.5cm + Acrylic Paints
- ② Cement Plastering "with 5cm raised" + Acrylic Paints
- ③ RC beam "with 15cm raised" +Plastering+Acrylic Paints
- ④ Aluminum Window (Brown Type)
- ⑤ Galvanized Tubes Steel Door
- ⑥ Stairs
- ⑦ Black hanash Stones Building
- ⑧ Protection Sidewalk



Western Elevation

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:
Construction of Laboratory Building in Kilo
General Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:
Western Elevation

DRAWING Type:
Architectural

Drawing Status: SCALE: As Shown
Design Drawing Paper Size:

DESIGNED BY : MSF
DATE: July ,2025

DWG.NO:

Arch-017

+5.60 G.L.▼

+5.00 G.L.▼

+0.75 G.L.▼

+00 G.L.▼

Roof Tiling
Cement Mortar
Insulation Layer
RC Roof
Cement Plastering
Acrylic Paints

Hollow Bricks Building

Wall Tiling
Cement Mortar
Bricks Wall
Cement Plastering
Acrylic Paints

Stainless Steel Bench

Stainless Steel Bench

RC Column

Black hanash Stones Building

Sidewalk
Curbstone

Neck Column

Compacted Soil

RC Foundation

Base course layer 25cm high

- Ceramic tiles size 40*40*0.6 cm
- Cement mortar 3cm thick
- Leveling sand 5cm thick
- Regular concrete 10cm thick
- Base course layer 15cm high
- Compacted soil
- Base course layer 25cm high

SECTION A-A

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction of Laboratory Building in Kilo
General Hospital

DRAWING TITLE:

SECTION A-A

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DWG.NO:

Arch-018

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING Type:

Architectural

DESIGNED BY :

MSF

DATE:

July ,2025

+5.60 G.L▼

+5.00 G.L▼

+0.75 G.L▼

+00 G.L▼

Roof Tiling
Cement Mortar
Insulation Layer
RC Roof
Cement Plastering
Acrylic Paints

Wall Tiling
Cement Mortar
Bricks Wall
Cement Plastering
Acrylic Paints

Hollow Bricks Building

Aluminum Window

Aluminum Door

Stainless Steel Bench

Sidewalk
Curbstone

Black hanash Stones Building

Joam Stone

Compacted Soil

9.00

- Ceramic tiles size 40*40*0.6 cm
- Cement mortar 3cm thick
- Leveling sand 5cm thick
- Regular concrete 10cm thick
- Base course layer 15cm high
- Compacted soil
- Base course layer 25cm high

Base course layer 25cm high

SECTION B-B

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction of Laboratory Building in Kilo
General Hospital

DRAWING TITLE:

SECTION B-B

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DWG.NO:

Arch-019

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING Type:

Architectural

DESIGNED BY :

MSF

DATE:

July ,2025

Second:

Structural Drawings

Funded by:



OPERATING CENTER GENEVA
CENTRE OPÉRATIONNEL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Cover of Structural Drawings

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

STR-000

Table of Content

No	Drawing Title	No	Drawing Title
STR-001	General Notes	STR-010	Details of foundations.
STR-002	General Notes	STR-011	Details of foundations.
STR-003	General Notes	STR-012	Details of foundations.
STR-004	Plan of columns axes	STR-013	Details of foundations.
STR-005	plan of foundations and columns.	STR-014	Plan of Roof Reinforcement
STR-006	plan of foundations ,columns and basalt stones ramming	STR-015	<u>Schedule of Roof Reinforcement</u>
STR-007	Plan of Ground Beams With Columns	STR-016	Details of beams .
STR-008	Reinforcement Schedules of foundations columns and ground beams.	STR-017	Details of beams .
STR-009	Details of foundations.	STR-018	Details of columns .

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Table of Content

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

STR-000

General notes

- 1- The building is designed with the following operational live loads :

Type of load	Value
Deed Loads	3.00 KN/M2
live loads	3.00 KN/M2

- 2- designed using US code specifications (ACI-318-2001).
3- Concrete foundations are designed considering the design bearing capacity of soil is (180KN/m²) and contractor's responsibility to ensure this.
4- The building is not designed to resistance earthquakes.

Reinforced concrete notes :

- 1- the materials used must comply with the specifications of the American code (ACI-318-2001)
2- The concrete cube strength after 28 days from the date of pouring for all structural elements in the building is as stated in the following table:

structural elements	the concrete cube strength F _c MPA
foundations	30
columns	35
beams & slabs	30

- 3- Minimum concrete cover for reinforcement in structural elements as shown in the table:

structural elements	concrete cover(mm)
1- foundations	50-70
2- columns	30-40
3- beams	25
4- slabs	20

- 4- The dimensions of the structural elements do not include the thickness of the finishes on all four sides
5- The depth of the beam includes the thickness of the slab.
6- Pipes and ducts should not be passed through reinforced concrete without the approval of the design engineer .

Reinforcement steel notes :

- 1- The stress of the reinforcement steel used for structural elements as shown in the table

structural elements	Yield stress of reinforcing steel F _y MPA	Notes
foundations	280 MPa	G40
columns	280 MPa	G40
beams & slabs	280 MPa	G40

Floor notes (beams and slabs) :

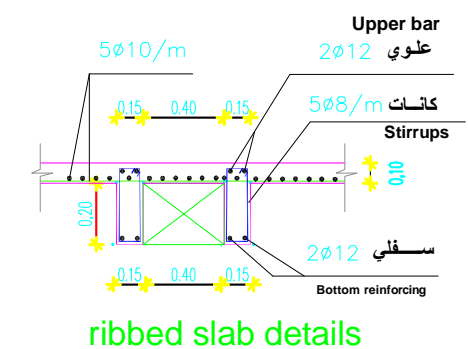
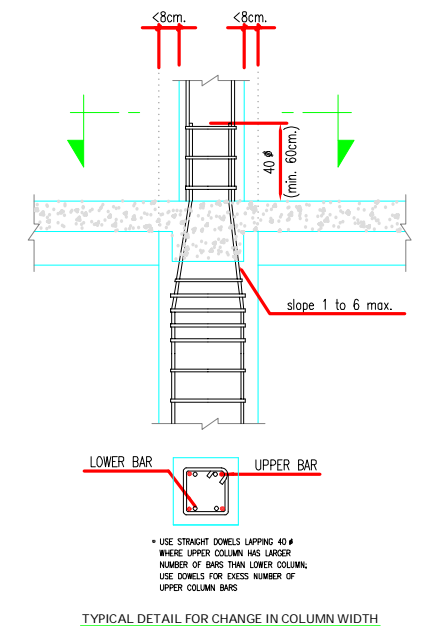
- 1- The depth of the beam includes the thickness of the upper slab, which has a thickness of 10 cm .
2- The thickness of the hollow bloke slab with its reinforcement as shown in the detail
3- The bent up is done in the beams as shown in the beams detail
4- The compressive strength of reinforced concrete after 28 days should not be less 300Kg/cm² .
5- The tensile strength of the reinforcement steel should not be less than 2800Kg/cm²
6- It is necessary to use clean reinforce steel free of rust.
7- The necessity of using mechanical vibrators during casting for all concrete elements
8- Watering is done twice a day for two weeks for all concrete elements,
9- The building materials used must be clean and free from any foreign substances

- 10- The owner or contractor is not allowed to make any modifications whatsoever without consulting the design engineer first
11- Thickenings are used in areas crowded with reinforcement bars
12- The stirrups are connected in the beams from all four sides
13- Beams with a width greater than 60 cm are implemented with double stirrups
14- The wooden framework is removed after three weeks of casting

Foundations and columns notes :

- 1- The soil bearing capacity is the responsibility of the designer is 18t/m² and the contractor to ensure.
2- The foundations are designed to support only three floors.
3- Excavation is done to the level of the soil suitable for foundation
4- A regular concrete bed is made under the foundations with a thickness of 10 cm and exceeds the dimensions of the foundations by 10 cm on each side.
5- The iron of the brush and cover cables is considered part of the reinforcing iron
6- The compressive strength of reinforced concrete after 28 days should not be less 350Kg/cm² for columns and 300Kg/cm² for foundations .
7- The tensile strength of the reinforcement steel should not be less than 2800Kg/cm² for all structural elements
8- It is necessary to use clean reinforce steel free of rust.
9- The foundations, nick's columns and ground beam must be painted with hot asphalt in three coats.
10- The necessity of using mechanical vibrators during casting for all concrete elements .
11- Watering is done twice a day for two weeks for all concrete elements, using burlap for the columns.
12- The building materials used must be clean and free from any foreign substances

- 13- The architectural dimensions are matched with the structural dimensions before implementation, and the center of the columns and the separate foundations erected on them must be consistent.
14- The owner or contractor has no right to make any modifications, whatever they may be, without consulting the design engineer.
15- The design engineer does not bear any responsibility in case of non-supervision.



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

General Notes

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

STR-001

ملاحظات عامة

1- تم تصميم المنشأ بأعتبار الأحمال الحية التشغيلية والميتة كالتالي :

نوع الحمل	القيمة
الأحمال الميتة	3.00 KN/M2
الأحمال الحية	3.00 KN/M2

2- تم التصميم باستخدام مواصفات الكود الأمريكي (ACI-318-2001)

3- تم تصميم القواعد بأعتبار سعة تحمل التربة التصميمية (180KN/m²) .

4- لم يتم تصميم المبنى على مقاومة الزلازل .

ملاحظات للخرسانة المسلحة

1- يجب أن تكون المواد المستخدمة مطابقة لمواصفات

الكود الأمريكي (ACI-318-2001)

2- مقاومة المكعب الخرسانة بعد 28 يوم من تاريخ الصب

لكافة العناصر الإنشائية في المبنى كما هو وارد في الجدول التالي :

العنصر الإنشائي	مقاومة المكعب الخرساني F'c MPA
القواعد	32
أعمدة	38
الجسور والبلاطات	32

3- أقل غطاء خرساني لحديد التسليح في العناصر الإنشائية كما هو موضح في الجدول التالي :

العنصر الإنشائي	الغطاء الخرساني (mm)
1- القواعد	50-70
2- أعمدة	30-40
3- الجسور	25
4- البلاطات	20

4- أبعاد العناصر الإنشائية لا تشمل سماكة التشطيبات

5- عمق الجسر يشمل سماكة البلاطة

6- المواسير والقنوات يجب أن لا تمرر داخل الخرسانة المسلحة دون موافقة المهندس المصمم

ملاحظات لحديد التسليح

1- أجهاد الخضوع لحديد التسليح المستخدم للعناصر

الإنشائية كما هو موضح في الجدول التالي :

العنصر الإنشائي	إجهاد الخضوع لحديد التسليح Fy MPA	ملاحظات
القواعد	280 MPa	G40
الأعمدة	280 MPa	G40
الجسور والبلاطات	280 MPa	G40

* ملاحظات :- الإسقف - الاعصاب والجسور

(1) ارتفاع الجسر يشمل ارتفاع البلاطة العلوية التي سماكتها 10سم .

(2) سماكة بلاطة السقف الهوردي مع تسليحها كما هو موضح في التفصيلة .

(3) يتم التوسيع في الجسور كما هو موضح في تفصيلة الجسور .

(4) مقاومة الخرسانة المسلحة بعد 28 يوم يجب ان لا تقل عن 300Kg/cm² .

(5) مقاومة حديد التسليح على الشد يجب لا تقل عن 2800Kg/cm² .

(6) يلزم استخدام حديد نظيف خالي من الصدأ .

(7) ضرورة استخدام الهزاز الميكانيكي عند الصب لجميع العناصر الخرسانية .

(8) يتم الرش بالماء مرتين باليوم لمدة اسبوعين لجميع العناصر الخرسانية .

(9) يجب ان تكون مواد البناء المستخدمة نظيفة وخالية من اي مواد غريبة .

(10) لا يحق للمالك او المقاول عمل اي تعديلات مهما كانت الا بعد الرجوع للمهندس المصمم .

(11) يتم استخدام الثخانات في المناطق المزدهمة بحديد التسليح .

(12) يتم ربط الكانات في الجسور من جميع الجهات الاربع .

(13) يتم استخدام الثخانات في المناطق المزدهمة بحديد التسليح .

(14) الجسور التي عرضها أكبر من 60سم ينفذ لها كانات مزدوجة محيطية ومزدوجة .

(15) تنزع الشدة الخشبية بعد ثلاثة اسابيع من الصب .

*ملاحظات:- القواعد والاعمدة

(1) قابلية تحمل التربة المصمم عليها 18t/m² وعلى المقاول مسؤولية التأكد من ذلك .

(2) صممت الاساسات لتتحمل ثلاثة ادوار فقط .

(3) يتم الحفر حتى عمق الصالح للتأسيس .

(4) يتم عمل فرشاة من الخرسانة العادية تحت

القواعد بسماكة 10 سم وتزيد ابعاد القواعد بمقدار 10 سم من كل جانب .

(5) حديد كوابيل الفرش والغطا يعتبر من ضمن حديد التسليح .

(6) مقاومة الخرسانة المسلحة بعد 28 يوم يجب ان

لا تقل عن 350Kg/cm² في الاعمدة و

300Kg/cm² في القواعد .

(7) مقاومة حديد التسليح على الشد يجب ان لا تقل عن 2800Kg/cm² في جميع العناصر الإنشائية

(8) يلزم استخدام حديد نظيف خالي من الصدأ .

(9) يلزم دهان القواعد والرقاب والميد

بلاسفلت الحار ثلاثة اوجة .

(10) ضرورة استخدام الهزاز الميكانيكي عند الصب

لجميع العناصر الخرسانية .

(11) يتم الرش بالماء مرتين باليوم لمدة اسبوعين

لجميع العناصر الخرسانية مع استخدام

الخيث للاعمدة .

(12) يجب ان تكون مواد البناء المستخدمة نظيفة

وخالية من اي مواد غريبة .

(13) يتم مطابقة الابعاد المعمارية مع الإنشائية

قبل التنفيذ وعلى أن ينطبق سنتر الاعمدة

والقواعد المنفصلة المقامة عليها .

(14) لا يحق للمالك او المقاول عمل اي تعديلات

مهما كانت الا بعد الرجوع للمهندس المصمم .

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OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

General Notes

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

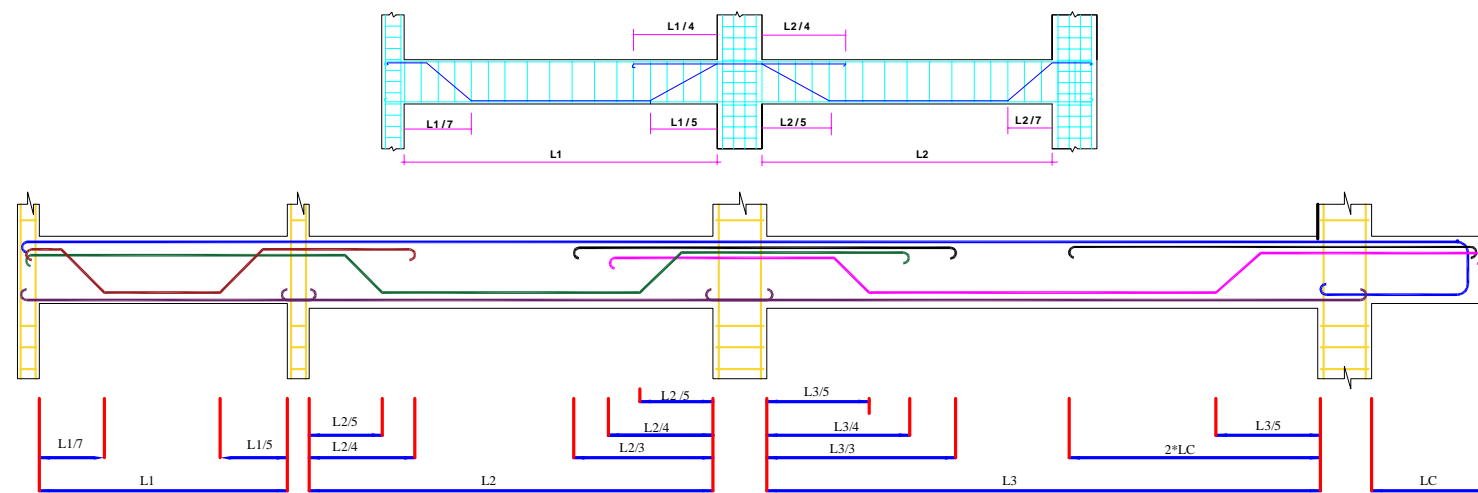
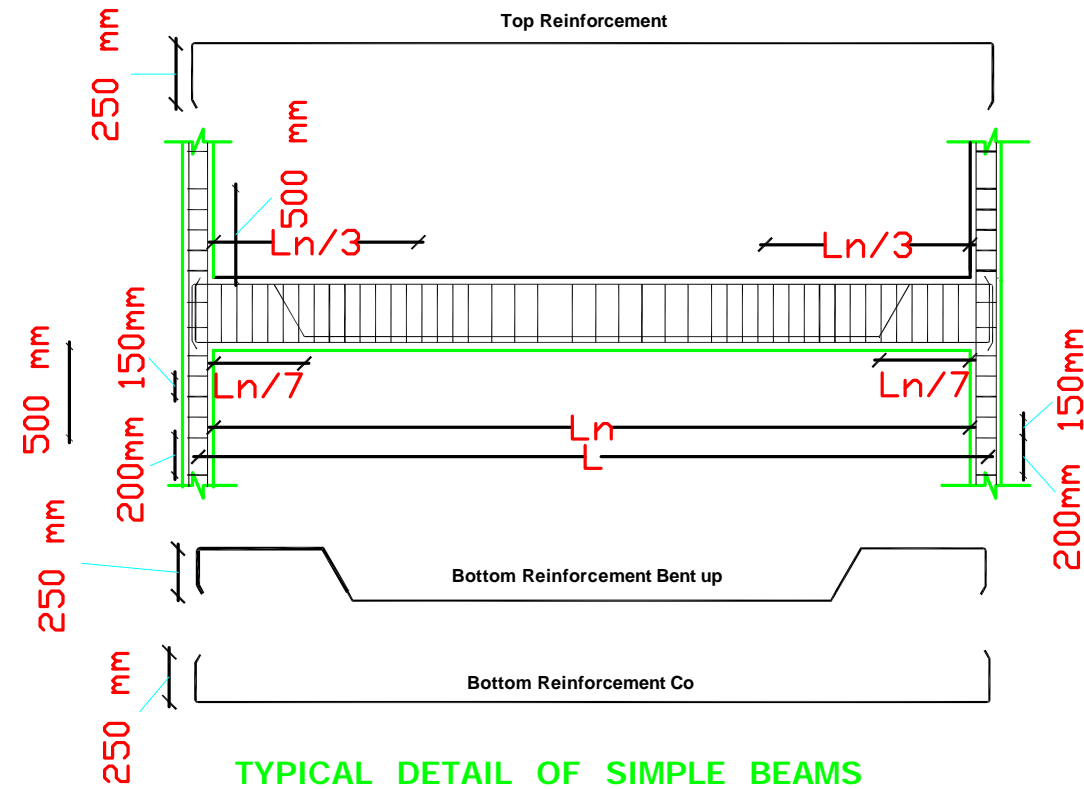
July ,2025

DWG.NO:

STR-002

- BEAMS

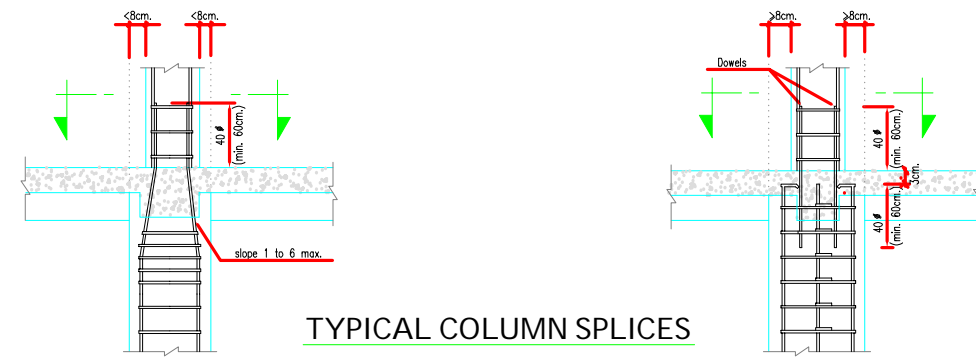
- Dimensions shown on framing plans indicate the width and the total depth including the thickness of the slab .
- In all beams of depth exceeding 600 mm. two bars ϕ 8 mm must be placed at distances not exceeding 30 cm.



General section showing details reinforcement and distance of bent up of beam

- COLUMNS

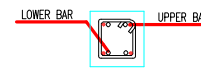
- Columns are designed to carry four floors .
- Stirrups used are as shown on Dwgs. If however not mentioned, they shall be taken as ϕ 8 @ 15 cm.



TYPE 1

- USE STRAIGHT DOWELS LAPPING 40 WHERE UPPER COLUMN HAS LARGER NUMBER OF BARS THAN LOWER COLUMN; USE DOWELS FOR EXCESS NUMBER OF UPPER COLUMN BARS

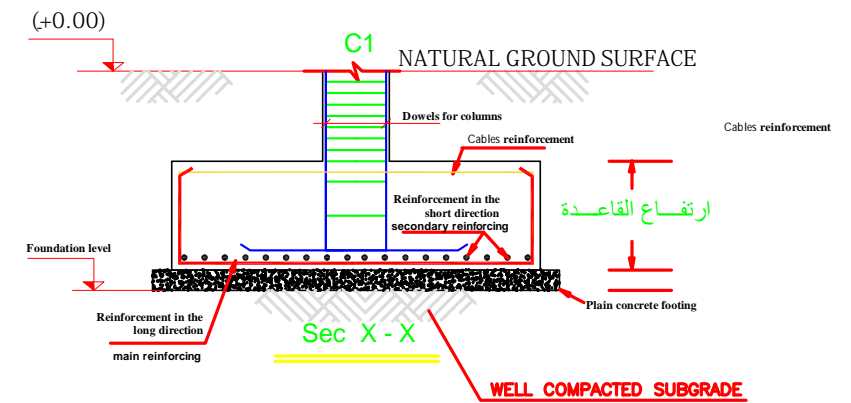
TYPE 2



TYPICAL DETAIL FOR CHANGE IN COLUMN WIDTH

- FOUNDATION

- The foundation levels from the natural ground surface are shown on Dwgs
- The soil report and foundation recommendations are to be considered .



TYPICAL DETAIL OF FOOTINGS

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

General Notes

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

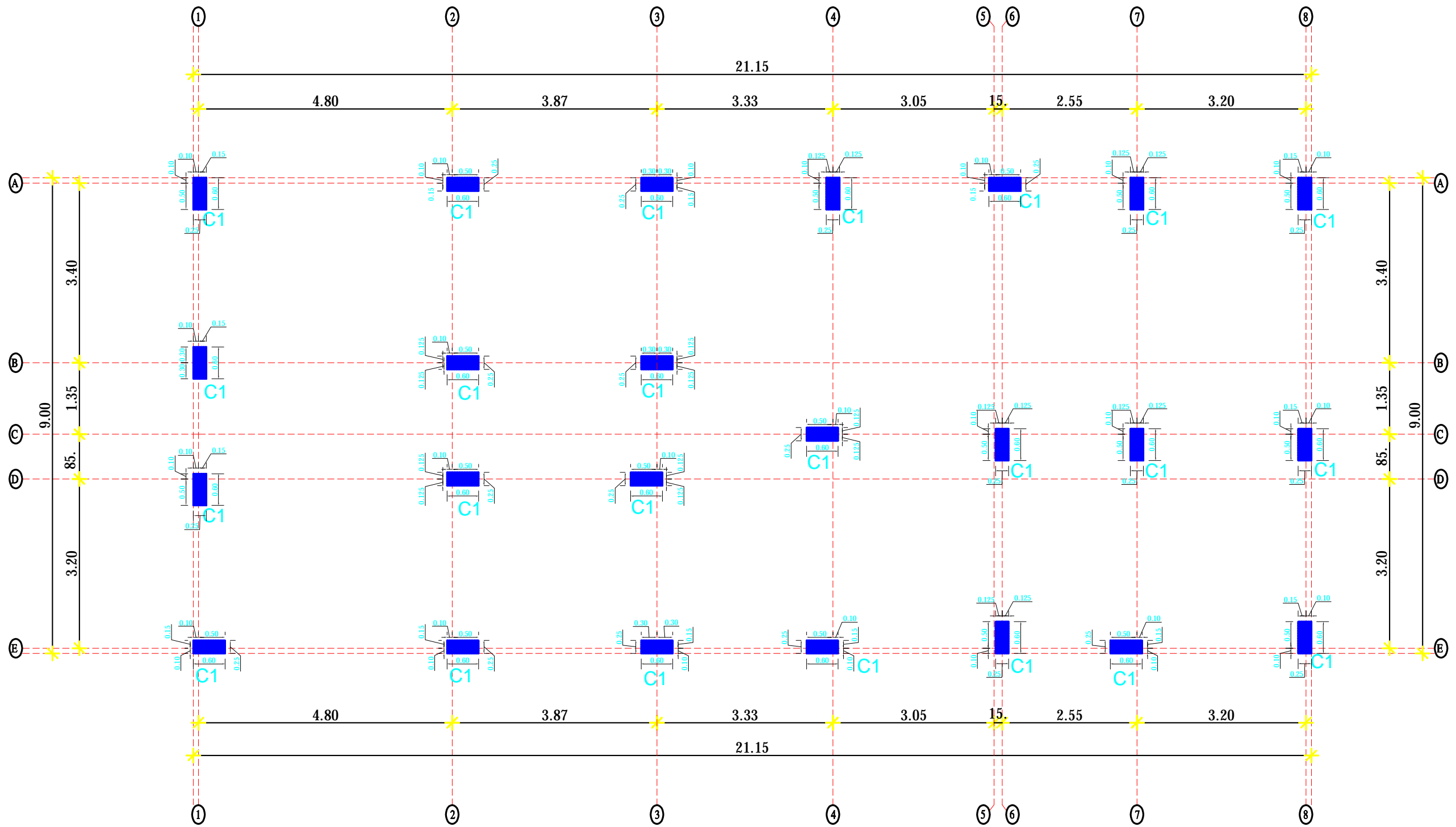
Paper Size:

DATE:

July ,2025

DWG.NO:

STR-003



المسقط الافقي لمحاور الاعمدة

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Plan of columns axes

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

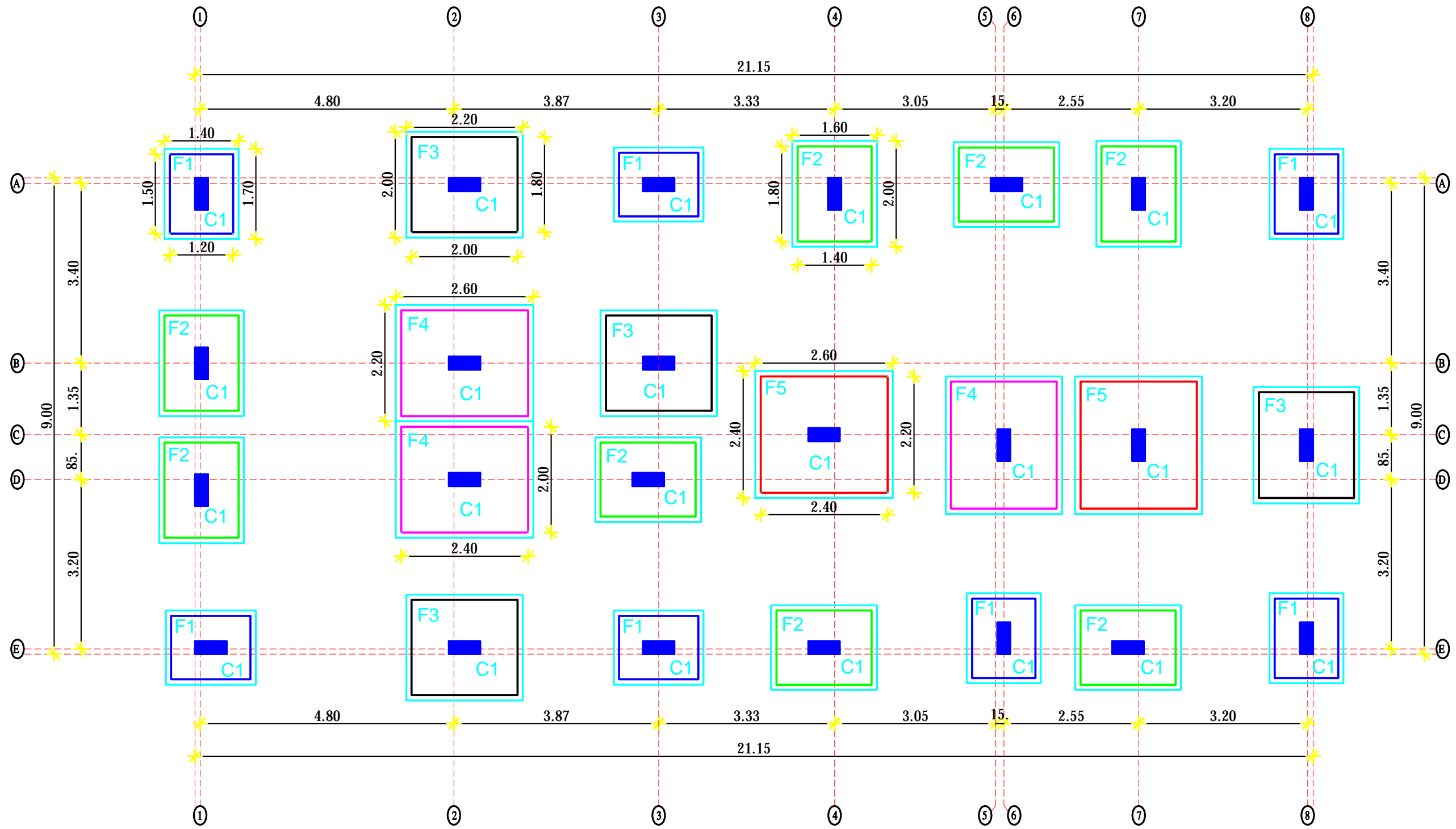
Paper Size:

DATE:

July ,2025

DWG.NO:

STR-004



المسقط الافقي للقواعد والاعمدة

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL DE GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

plan of foundations and columns.

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

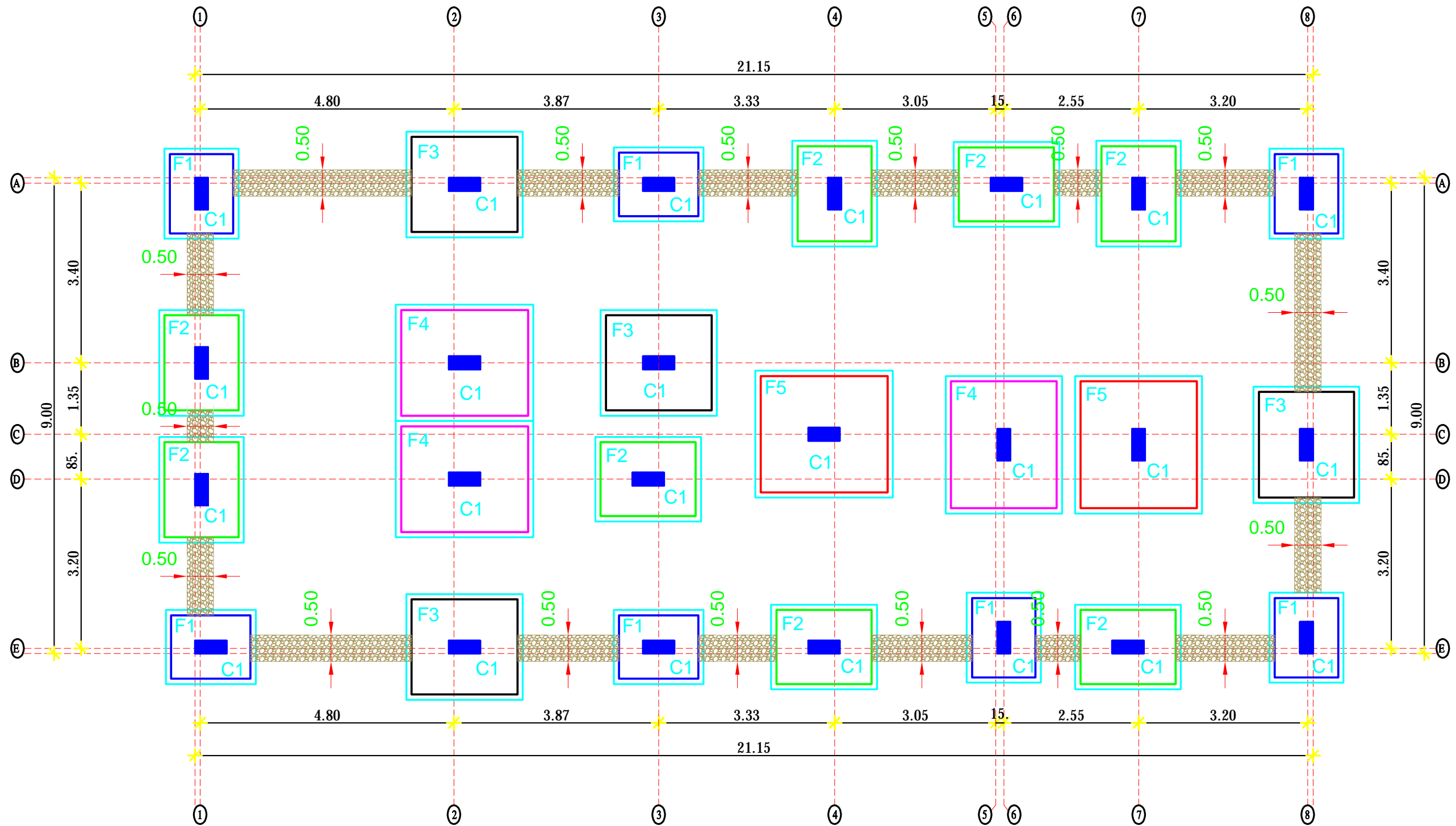
Paper Size:

DATE:

July ,2025

DWG.NO:

STR-005



المسقط الافقي للقواعد والاعمدة
ومباني الجعم بين القواعد

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL DE GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

plan of foundations ,columns and
basalt stones ramming

DRAWING Type:

Civil

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

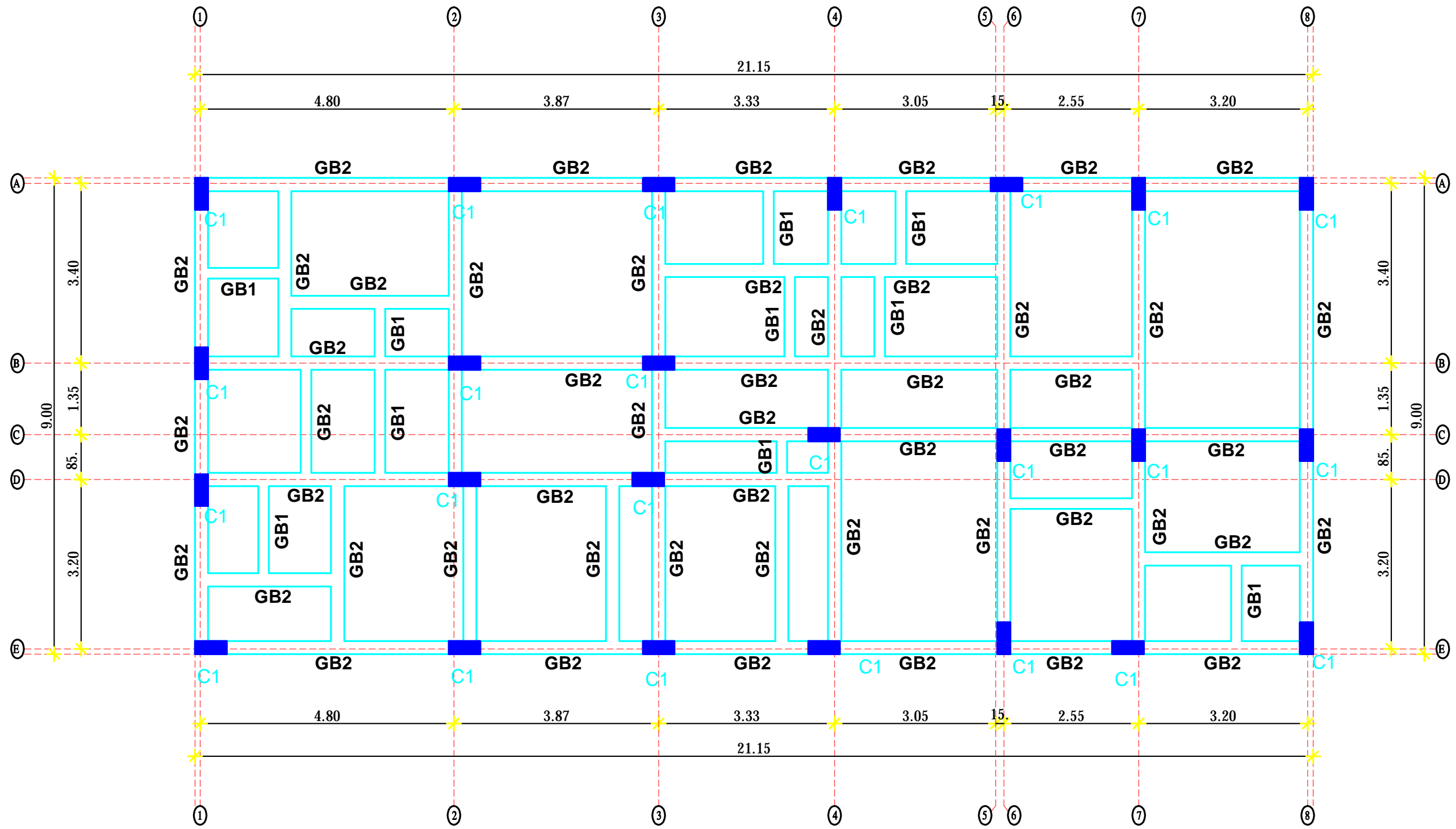
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DATE:

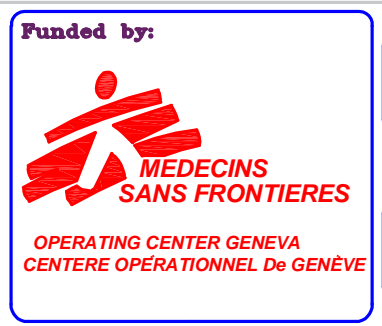
July ,2025

DWG.NO:

STR-006



المسقط الافقي للميد مع الاعمدة



PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:
Plan of Ground Beams With Columns

DRAWING Type:
Civil

Drawing Status:
Design Drawing

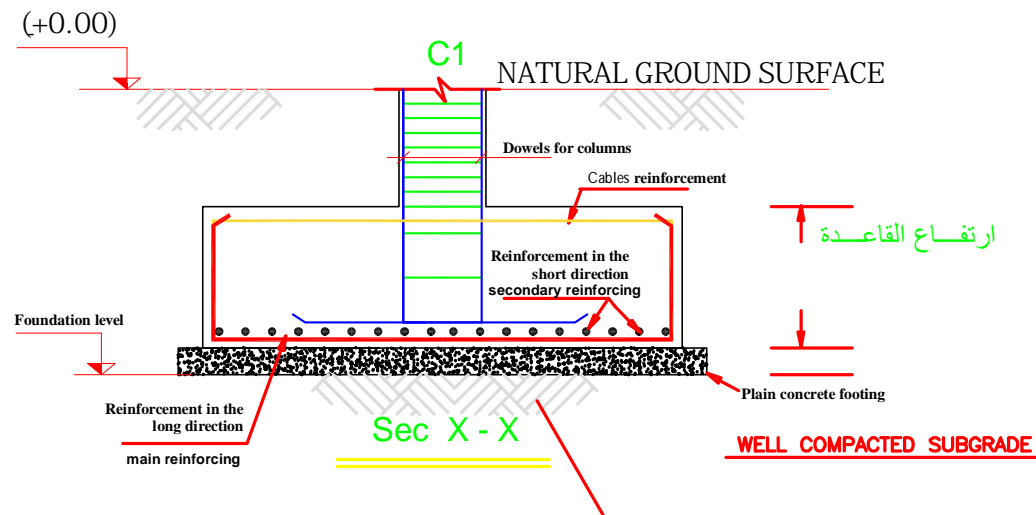
SCALE: As Shown

Paper Size:

DESIGNED BY :
MSF

DATE:
July ,2025

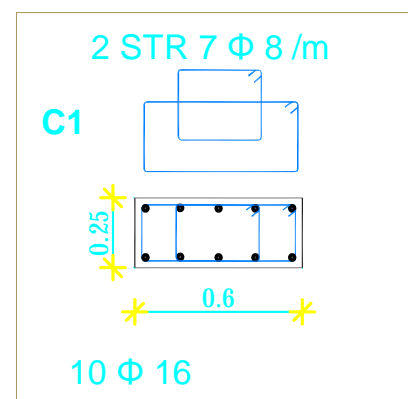
DWG.NO:
STR-007



TYPICAL DETAIL OF FOOTINGS

ابعاد وتسليح القواعد		Dimension & Reinforcing of Foundation										ملاحظات Notes
code	الخرسانة العادية			الخرسانة المسلحة			التسليح		حديد الكوابيل		العدد Foundation No	
	length (m)	width (m)	High (m)	length (m)	width (m)	High (m)	main reinforcing	secondary reinforcing	main reinforcing	secondary reinforcing		
F1	1.70	1.40	0.10	1.50	1.20	0.40	6Ø16/m	6Ø16/m	2Ø16	2Ø16	7	
F2	2.00	1.60	0.10	1.80	1.40	0.40	6Ø16/m	6Ø16/m	2Ø16	2Ø16	8	
F3	2.20	2.00	0.10	2.00	1.80	0.50	7Ø16/m	7Ø16/m	2Ø16	2Ø16	4	
F4	2.60	2.20	0.10	2.40	2.00	0.60	8Ø16/m	8Ø16/m	2Ø16	2Ø16	3	
F5	2.60	2.40	0.10	2.40	2.20	0.60	8Ø16/m	8Ø16/m	2Ø16	2Ø16	2	

جدول تسليح المييد				Schedule of Ground Beams reinforcing			ملاحظات Notes
code	الابعاد		التسليح السفلي		التسليح العلوي	حديد الكانات	
	width (cm)	Depth (cm)	Bottom bar	Bent up bar			
GB1	20	50	2Ø16	—	2Ø16	7Ø8/m	
GB2	25	50	2Ø16	2Ø16	2Ø16	8Ø8/m	



جدول تسليح الاعمدة					Schedule of Columns reinforcing						
أعمدة الدور الارضي			أعمدة الرقاب			Ground Columns			Nicks columns		
code	الابعاد		العدد	العدد	العدد	العدد	العدد	العدد	العدد	العدد	
	width (cm)	length (cm)									main reinforcing
C1	25	60	10Ø16	2X7Ø8/m	24	C1	25	60	10Ø16	2X7Ø8/m	24

Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Reinforcement Schedules of foundations
columns and ground beams.

DRAWING Type:

Civil

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

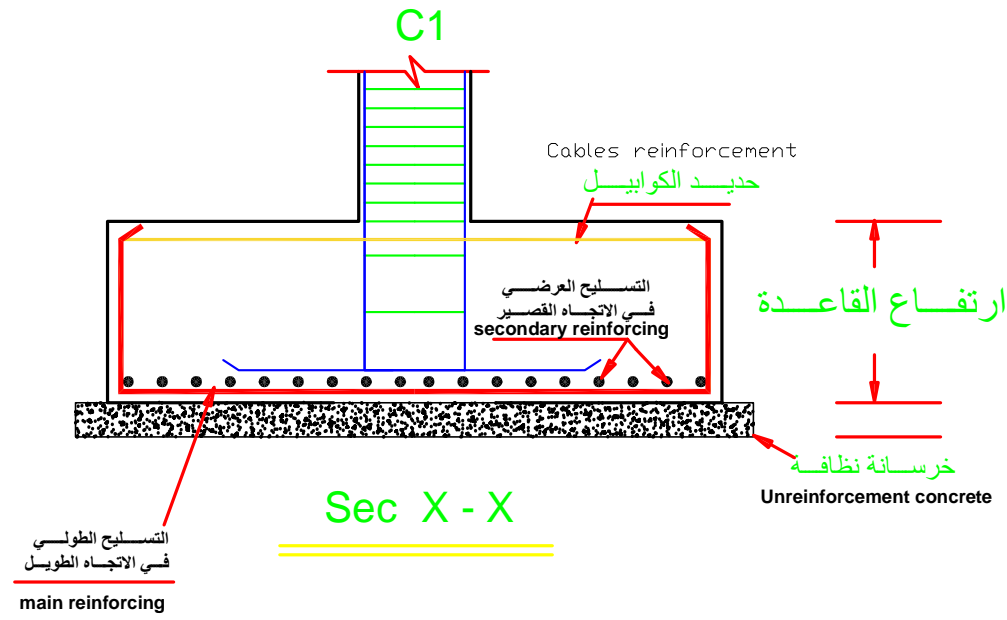
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DATE:

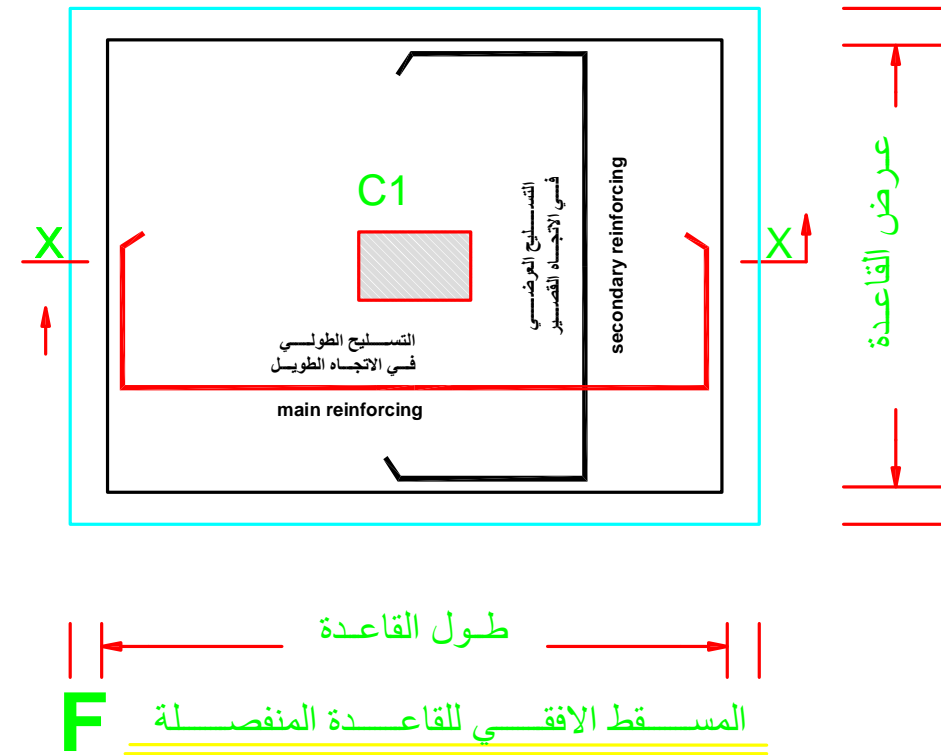
July ,2025

DWG.NO:

STR-008



- الملاحظات للقواعد المنفصلة**
- تنفيذ خرسانة عادية اسفل القواعد سمك 10سم وتبريز 10سم من جميع الجوانب
 - حديد الكوابيل محسوب من الحديد الكلي -



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CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Details of foundations.

DRAWING Type:

Civil

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

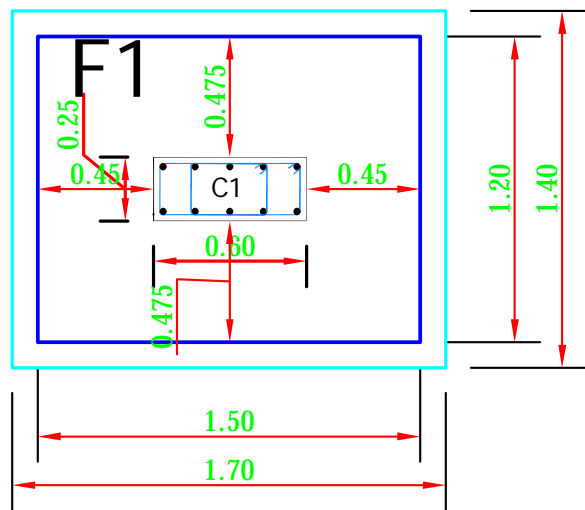
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DATE:

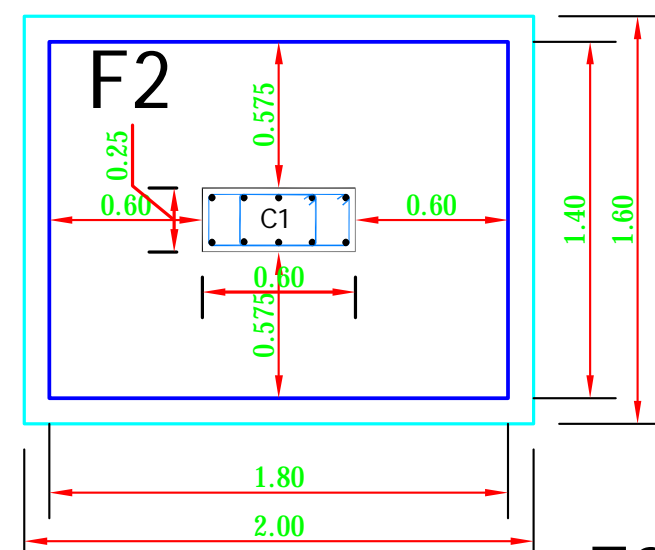
July ,2025

DWG.NO:

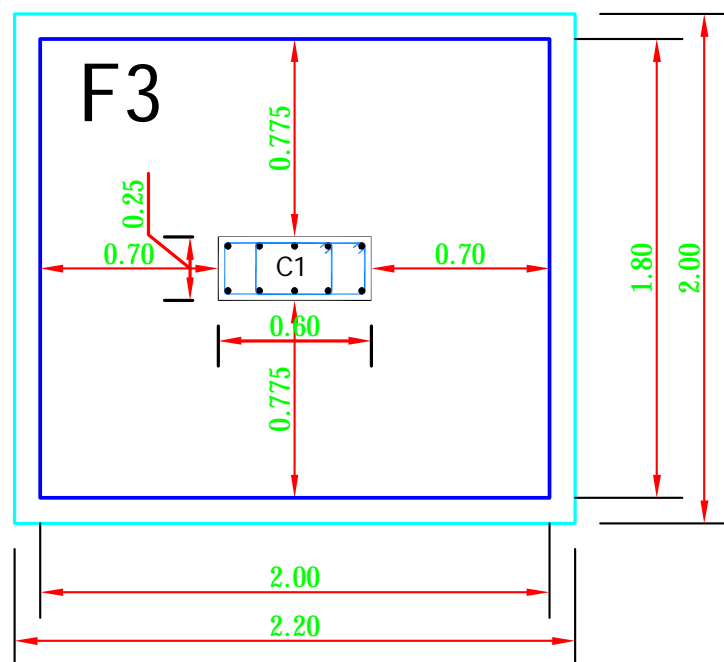
STR-009



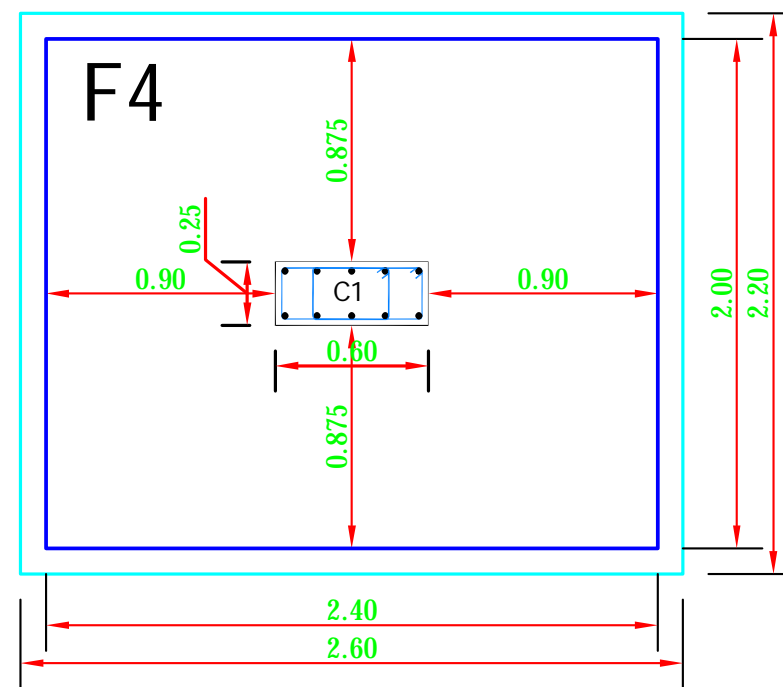
The plan for foundation F1



The plan for foundation F2



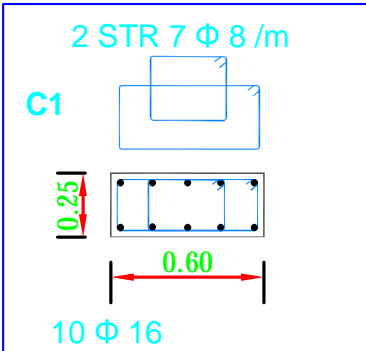
The plan for foundation F3



The plan for foundation F4

***ملاحظات:-**

- (1) قابلية تحمل التربة المصمم عليها 18t/m2 وعلى المقاول مسؤولية التأكد من ذلك .
- (2) صممت الاساسات لتحتمل ثلاثة ادوار فقط .
- (3) يتم الحفر حتى عمق الصالح للتأسيس .
- (4) يتم عمل فرشاة من الخرسانة العادية تحت القواعد بسماكة 10 سم وتزيد ابعاد القواعد بمقدار 10 سم من كل جانب .
- (5) حديد كوابيل الفرش والغطا يعتبر من ضمن حديد التسليح .
- (6) مقاومة الخرسانة المسلحة بعد 28 يوم يجب ان لا تقل عن 350Kg/cm2 في الاعمدة و 300Kg/cm2 في القواعد .
- (7) مقاومة حديد التسليح على الشد يجب ان لا تقل عن 2800Kg/cm2 في جميع العناصر الانشائية
- (8) يلزم استخدام حديد نظيف خالي من الصدأ .
- (9) يلزم دهمان القواعد والرقاب والميد بالأسفلت الحار ثلاثة اوجة .
- (10) ضرورة استخدام الهزاز الميكانيكي عند الصب لجميع العناصر الخرسانية .
- (11) يتم الرش بالماء مرتين باليوم لمدة اسبوعين لجميع العناصر الخرسانية مع استخدام الخيش للاعمدة .
- (12) يجب ان تكون مواد البناء المستخدمة نظيفة وخالية من اي مواد غريبة .
- (13) يتم مطابقة الابعاد المعمارية مع الانشائية قبل التنفيذ وعلى أن ينطبق سنتر الاعمدة والقواعد المنفصلة المقامة عليها .
- (14) لا يحق للمالك او المقاول عمل اي تعديلات مهما كانت الا بعد الرجوع للمهندس المصمم .



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OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Details of foundations.

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

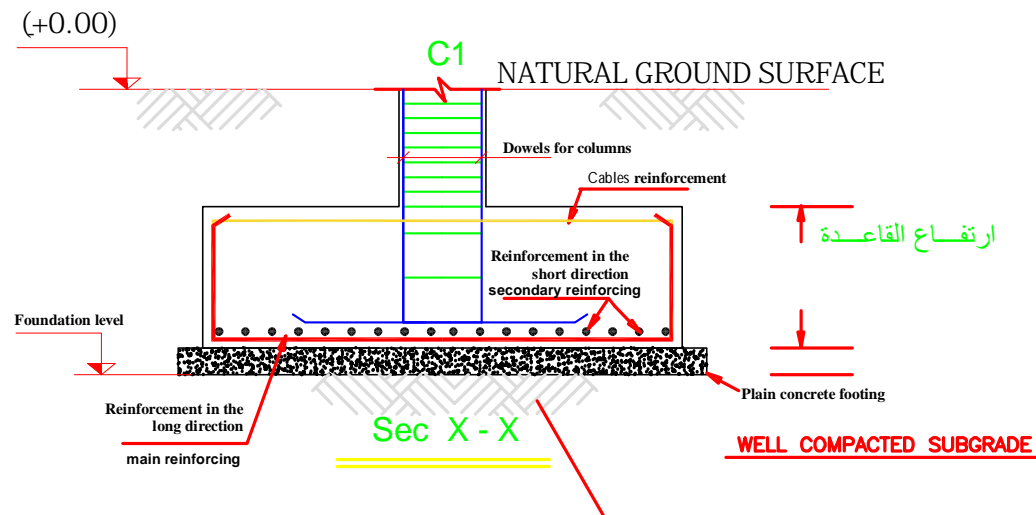
Paper Size:

DATE:

July ,2025

DWG.NO:

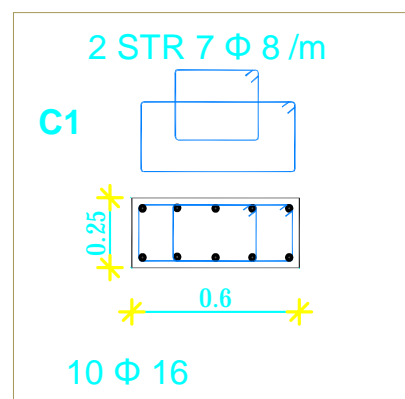
STR-010



TYPICAL DETAIL OF FOOTINGS

ابعاد وتسليح القواعد		Dimension & Reinforcing of Foundation										ملاحظات Notes
code	الخرسانة العادية			الخرسانة المسلحة			التسليح		حديد الكوابيل		العدد Foundation No	
	length (m)	width (m)	High (m)	length (m)	width (m)	High (m)	main reinforcing	secondary reinforcing	main reinforcing	secondary reinforcing		
F1	1.70	1.40	0.10	1.50	1.20	0.40	6Ø16/m	6Ø16/m	2Ø16	2Ø16	7	
F2	2.00	1.60	0.10	1.80	1.40	0.40	6Ø16/m	6Ø16/m	2Ø16	2Ø16	8	
F3	2.20	2.00	0.10	2.00	1.80	0.50	7Ø16/m	7Ø16/m	2Ø16	2Ø16	4	
F4	2.60	2.20	0.10	2.40	2.00	0.60	8Ø16/m	8Ø16/m	2Ø16	2Ø16	3	
F5	2.60	2.40	0.10	2.40	2.20	0.60	8Ø16/m	8Ø16/m	2Ø16	2Ø16	2	

جدول تسليح المياد				Schedule of Ground Beams reinforcing			ملاحظات Notes
code	الابعاد		التسليح السفلي		التسليح العلوي	حديد الكانات	
	width (cm)	Depth (cm)	Bottom bar	Bent up bar			
GB1	20	50	2Ø16	—	2Ø16	7Ø8/m	
GB2	25	50	2Ø16	2Ø16	2Ø16	8Ø8/m	



جدول تسليح الاعمدة					Schedule of Columns reinforcing						
أعمدة الدور الارضي			أعمدة الرقاب			Ground Columns			Nicks columns		
code	الابعاد		العدد	العدد	العدد	الابعاد	العدد	العدد	العدد	العدد	
	width (cm)	length (cm)									main reinforcing
C1	25	60	10Ø16	2X7Ø8/m	24	C1	25	60	10Ø16	2X7Ø8/m	24

Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Reinforcement Schedules of foundations
columns and ground beams.

DRAWING Type:

Civil

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

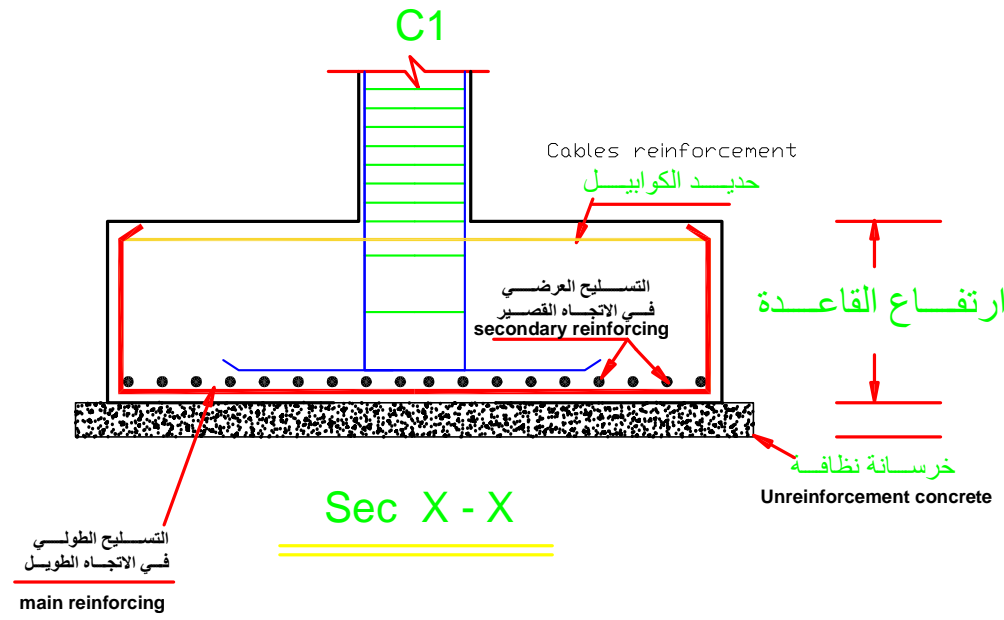
MSF

DATE:

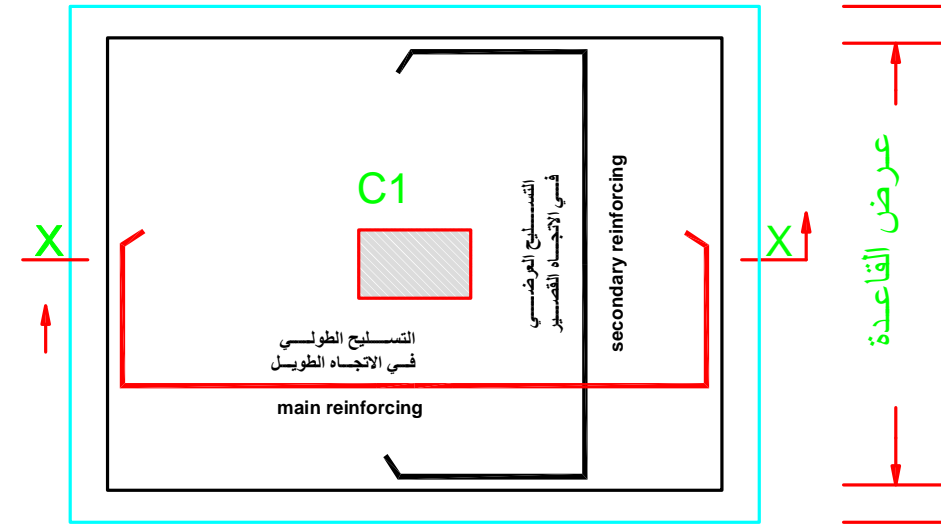
July ,2025

DWG.NO:

STR-008



- الملاحظات للقواعد المنفصلة**
- تنفيذ خرسانة عادية اسفل القواعد سمك 10سم وتبريز 10سم من جميع الجوانب
 - حديد الكوابيل محسوب من الحديد الكلي -



طول القاعدة
المسقط الأفقي للقاعدة المنفصلة

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Details of foundations.

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

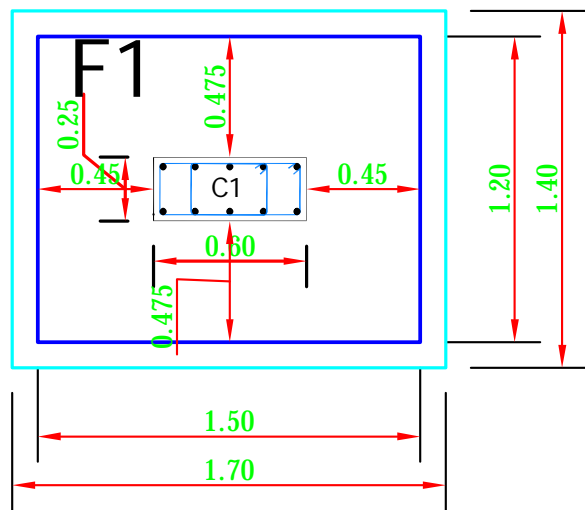
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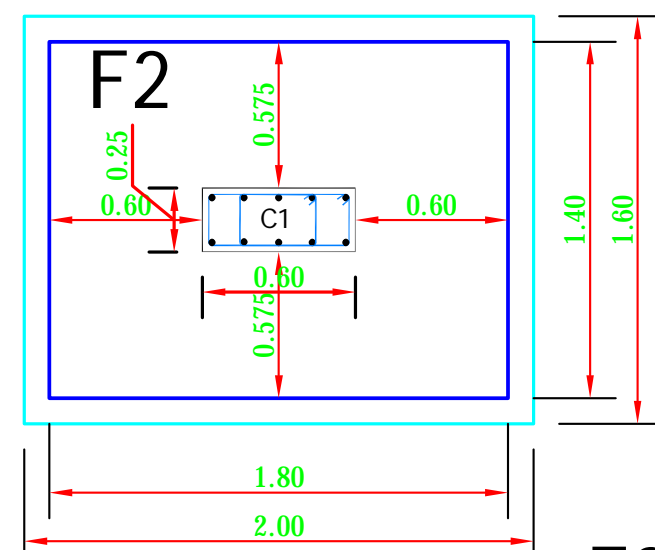
July ,2025

DWG.NO:

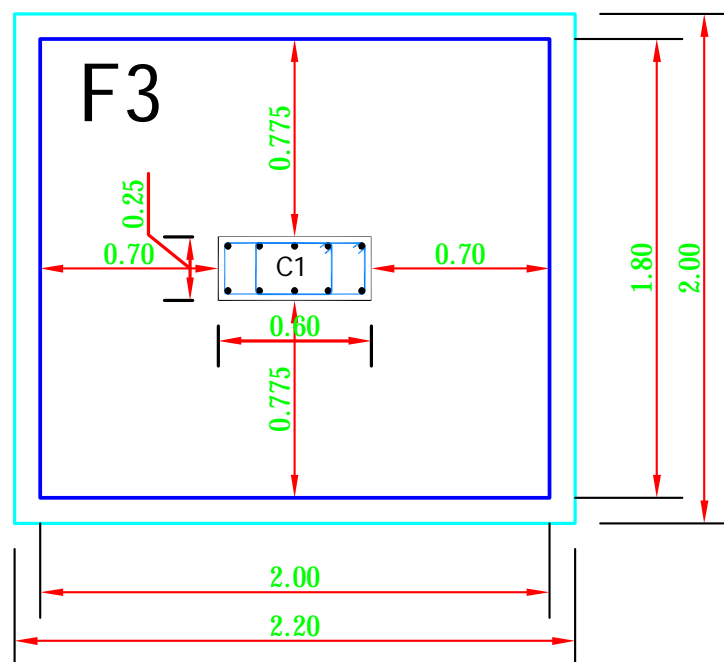
STR-009



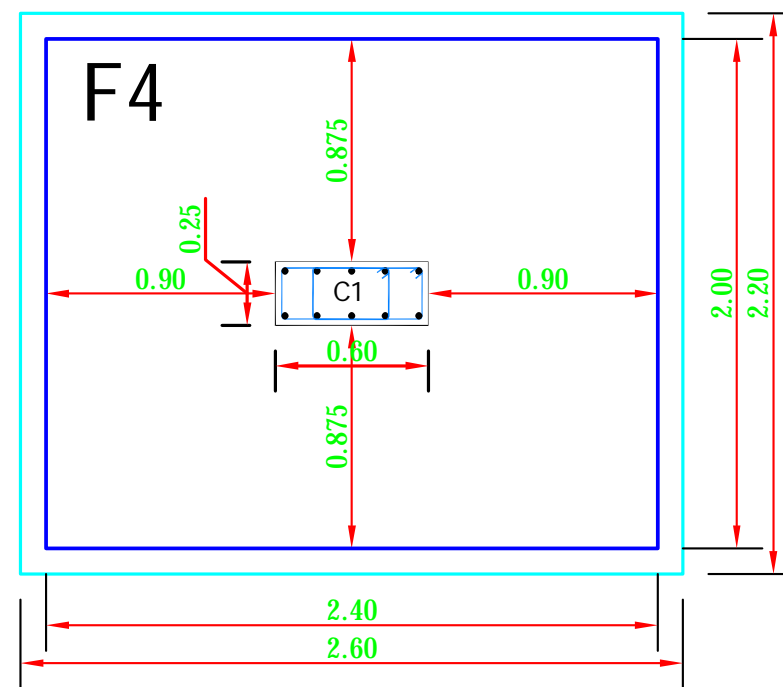
The plan for foundation F1



The plan for foundation F2



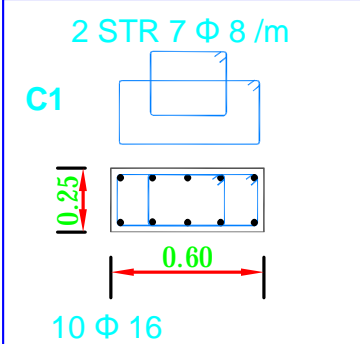
The plan for foundation F3



The plan for foundation F4

***ملاحظات:-**

- (1) قابلية تحمل التربة المصمم عليها 18t/m2 وعلى المقاول مسؤولية التأكد من ذلك .
- (2) صممت الاساسات لتحتمل ثلاثة ادوار فقط .
- (3) يتم الحفر حتى عمق الصالح للتأسيس .
- (4) يتم عمل فرشاة من الخرسانة العادية تحت القواعد بسماكة 10 سم وتزيد ابعاد القواعد بمقدار 10 سم من كل جانب .
- (5) حديد كوابيل الفرش والغطا يعتبر من ضمن حديد التسليح .
- (6) مقاومة الخرسانة المسلحة بعد 28 يوم يجب ان لا تقل عن 350Kg/cm2 في الاعمدة و 300Kg/cm2 في القواعد .
- (7) مقاومة حديد التسليح على الشد يجب ان لا تقل عن 2800Kg/cm2 في جميع العناصر الانشائية
- (8) يلزم استخدام حديد نظيف خالي من الصدأ .
- (9) يلزم دهمان القواعد والرقاب والميد بالأسفلت الحار ثلاثة اوجة .
- (10) ضرورة استخدام الهزاز الميكانيكي عند الصب لجميع العناصر الخرسانية .
- (11) يتم الرش بالماء مرتين باليوم لمدة اسبوعين لجميع العناصر الخرسانية مع استخدام الخيش للاعمدة .
- (12) يجب ان تكون مواد البناء المستخدمة نظيفة وخالية من اي مواد غريبة .
- (13) يتم مطابقة الابعاد المعمارية مع الانشائية قبل التنفيذ وعلى أن ينطبق سنتر الاعمدة والقواعد المنفصلة المقامة عليها .
- (14) لا يحق للمالك او المقاول عمل اي تعديلات مهما كانت الا بعد الرجوع للمهندس المصمم .



Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Details of foundations.

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

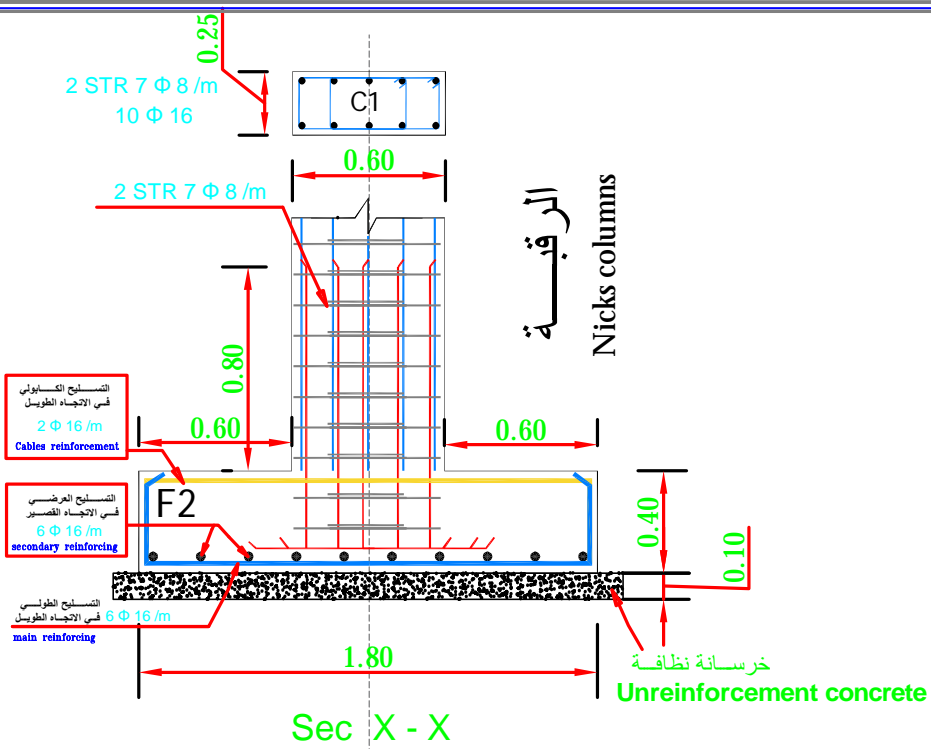
Paper Size:

DATE:

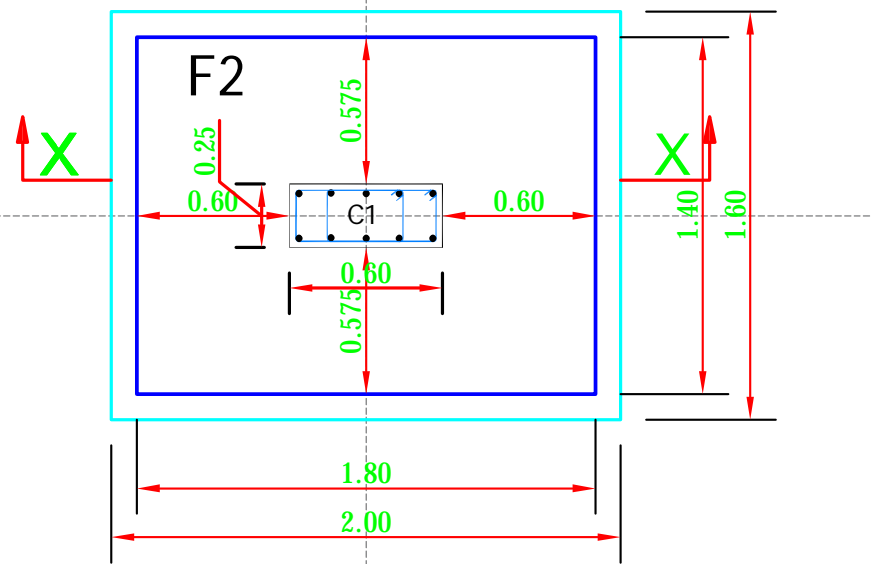
July ,2025

DWG.NO:

STR-010

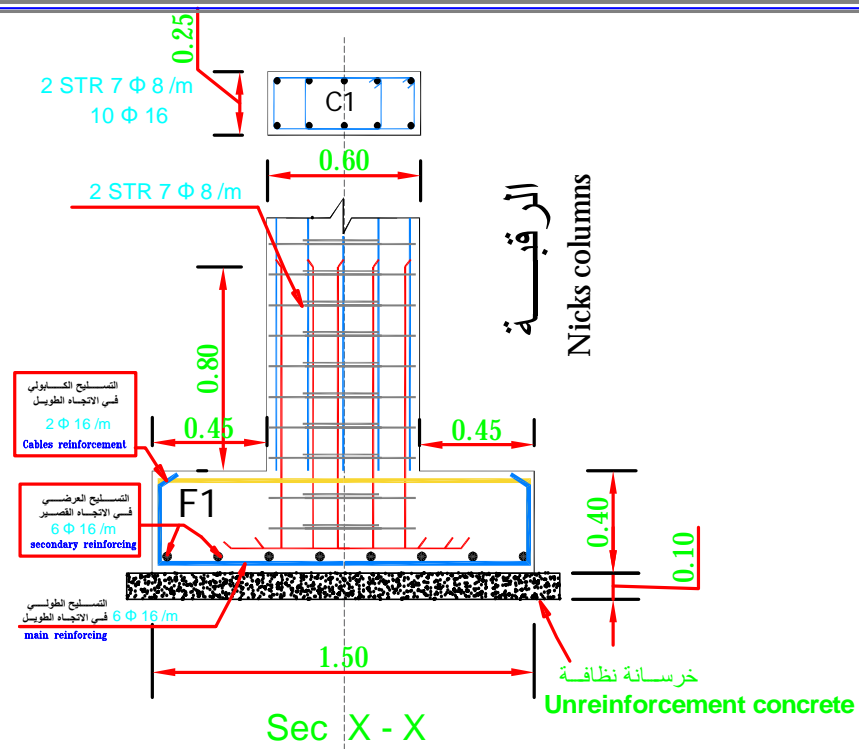


Sec X - X

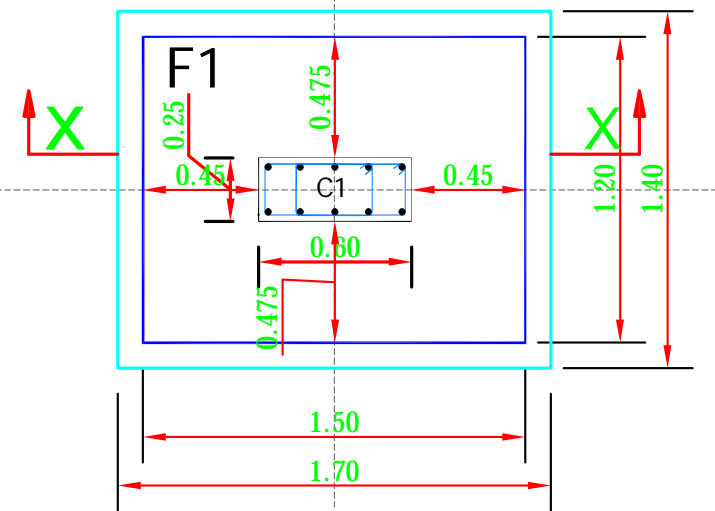


المسقط الافقي للقاعدة F2

عدد 8



Sec X - X

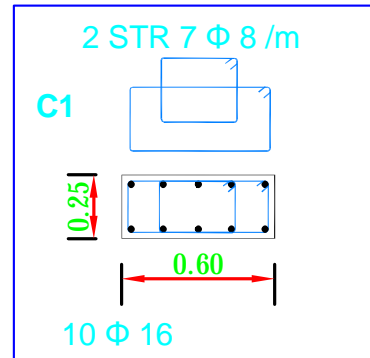


المسقط الافقي للقاعدة F1

عدد 7

*ملاحظات:-

- (1) قابلية تحمل التربة المصمم عليها 18t/m2 وعلى المقاول مسؤولية التأكد من ذلك .
- (2) صممت الاساسات لتحتمل ثلاثة ادوار فقط .
- (3) يتم الحفر حتى عمق الصالح للتأسيس .
- (4) يتم عمل فرشاة من الخرسانة العادية تحت القواعد بسماكة 10 سم وتزيد ابعاد القواعد بمقدار 10 سم من كل جانب .
- (5) حديد كوابيل الفرش والغطا يعتبر من ضمن حديد التسليح .
- (6) مقاومة الخرسانة المسلحة بعد 28 يوم يجب ان لا تقل عن 350Kg/cm2 في الاعمدة و 300Kg/cm2 في القواعد .
- (7) مقاومة حديد التسليح على الشد يجب ان لا تقل عن 2800Kg/cm2 في جميع العناصر الانشائية
- (8) يلزم استخدام حديد نظيف خالي من الصدأ .
- (9) يلزم دهان القواعد والرقاب والميد بالأسفلت الحار ثلاثة اوجة .
- (10) ضرورة استخدام الهزاز الميكانيكي عند الصب لجميع العناصر الخرسانية .
- (11) يتم الرش بالماء مرتين باليوم لمدة اسبوعين لجميع العناصر الخرسانية مع استخدام الخيش للاعمدة .
- (12) يجب ان تكون مواد البناء المستخدمة نظيفة وخالية من اي مواد غريبة .
- (13) يتم مطابقة الابعاد المعمارية مع الانشائية قبل التنفيذ وعلى أن ينطبق سنتر الاعمدة والقواعد المنفصلة المقامة عليها .
- (14) لا يحق للمالك او المقاول عمل اي تعديلات مهما كانت الا بعد الرجوع للمهندس المصمم .



Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Details of foundations.

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

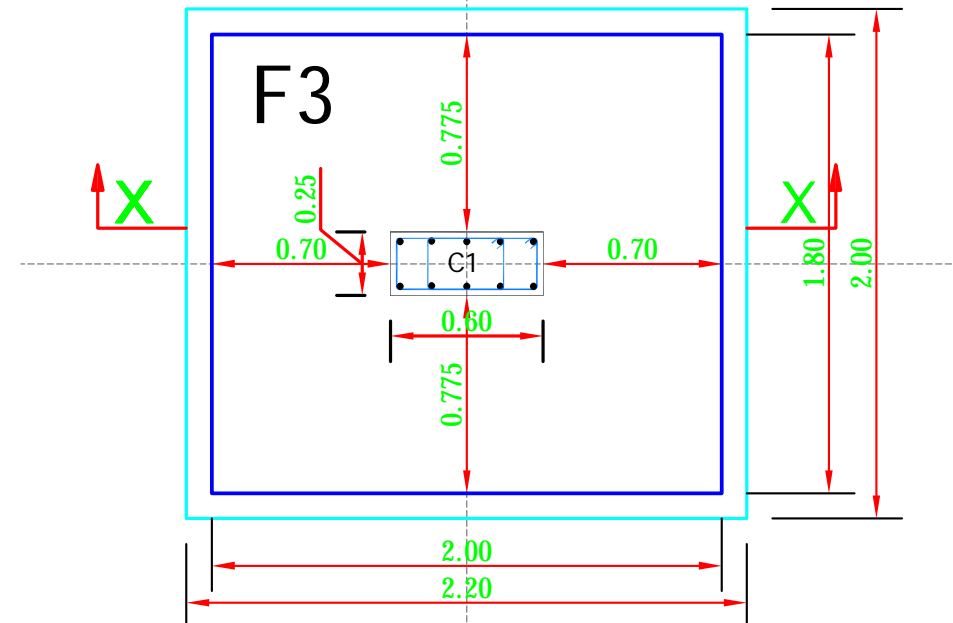
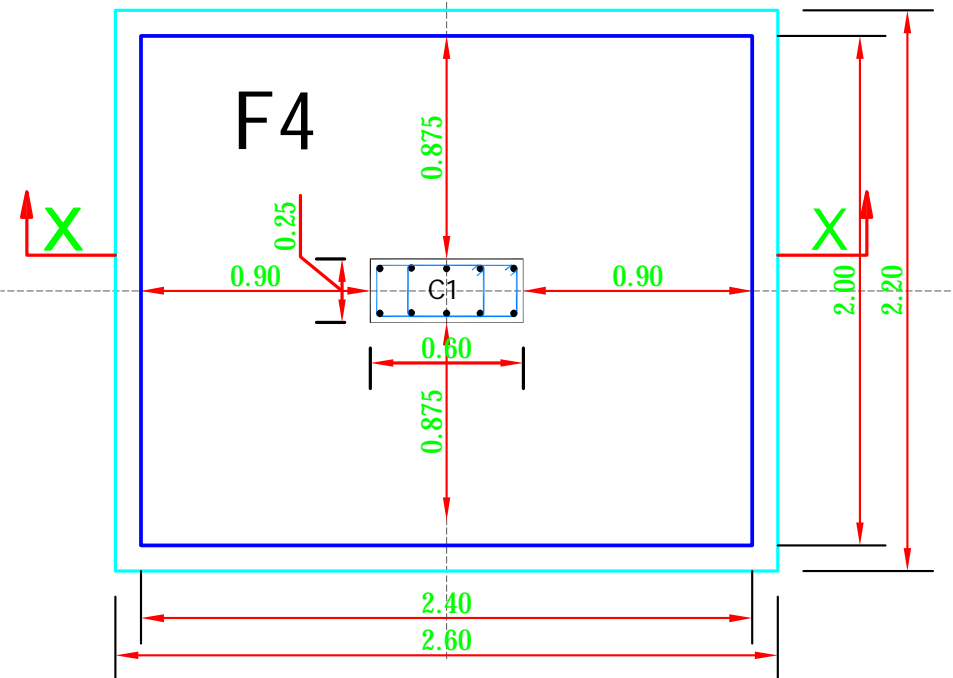
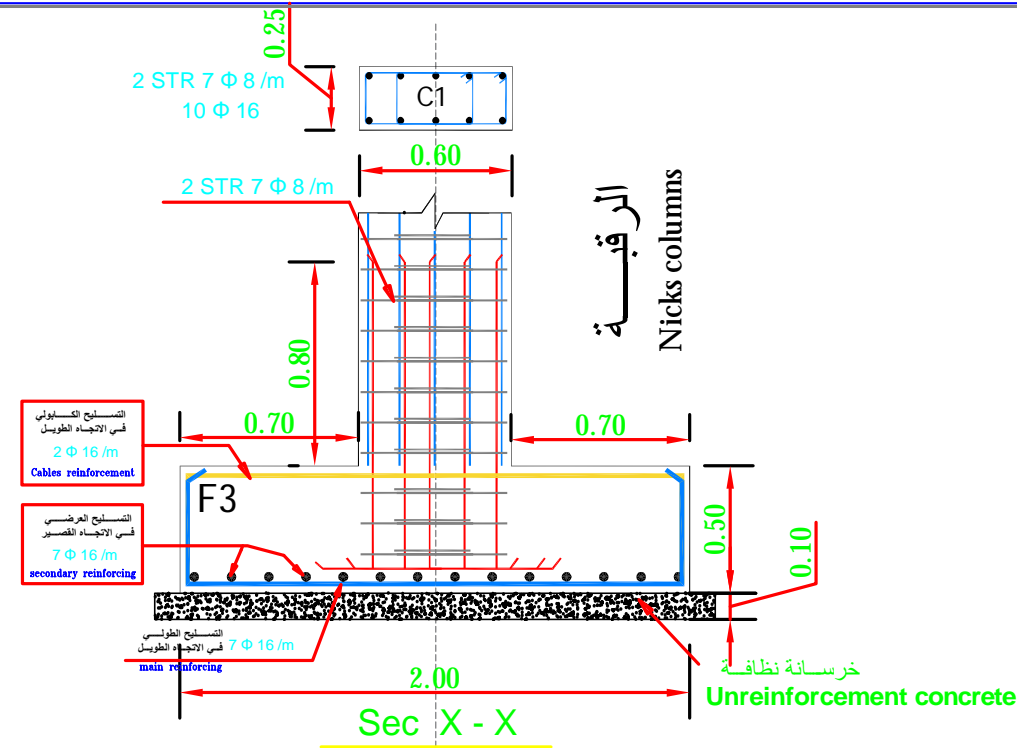
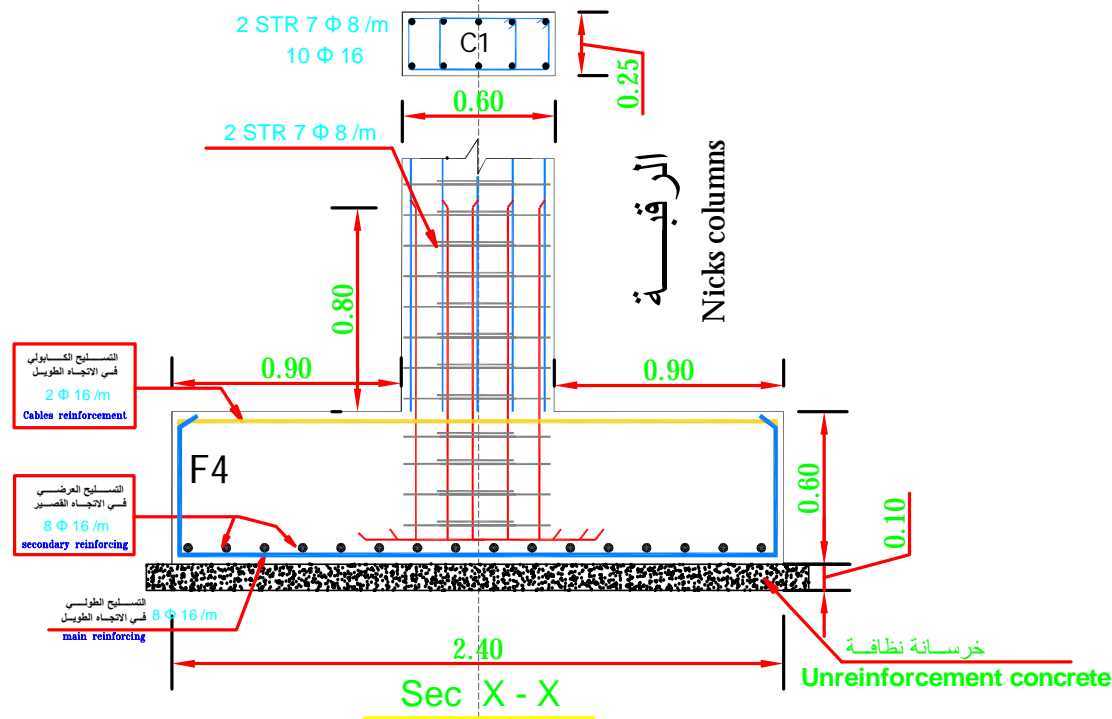
Paper Size:

DATE:

July ,2025

DWG.NO:

STR-011

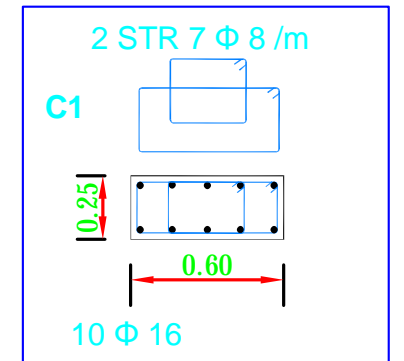


المسقط الأفقي للقاعدة F4

المسقط الأفقي للقاعدة F3

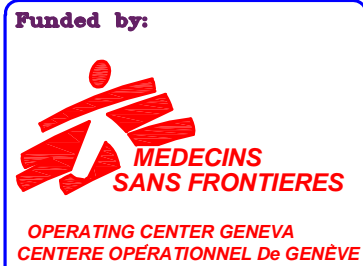
عدد 3

عدد 4



*ملاحظات:-

- (1) قابلية تحمل التربة المصمم عليها 18t/m2 وعلى المقاول مسؤولية التأكد من ذلك .
- (2) صممت الاساسات لتحتمل ثلاثة ادوار فقط .
- (3) يتم الحفر حتى عمق الصالح للتأسيس .
- (4) يتم عمل فرشاة من الخرسانة العادية تحت القواعد بسماكة 10 سم وتزيد ابعاد القواعد بمقدار 10 سم من كل جانب .
- (5) حديد كوابيل الفرش والغطا يعتبر من ضمن حديد التسليح .
- (6) مقاومة الخرسانة المسلحة بعد 28 يوم يجب ان لا تقل عن 350Kg/cm2 في الاعمدة و 300Kg/cm2 في القواعد .
- (7) مقاومة حديد التسليح على الشد يجب ان لا تقل عن 2800Kg/cm2 في جميع العناصر الانشائية
- (8) يلزم استخدام حديد نظيف خالي من الصدأ .
- (9) يلزم دهان القواعد والرقاب والميد بالأسفلت الحار ثلاثة اوجة .
- (10) ضرورة استخدام الهزاز الميكانيكي عند الصب لجميع العناصر الخرسانية .
- (11) يتم الرش بالماء مرتين باليوم لمدة اسبوعين لجميع العناصر الخرسانية مع استخدام الخيش للاعمدة .
- (12) يجب ان تكون مواد البناء المستخدمة نظيفة وخالية من اي مواد غريبة .
- (13) يتم مطابقة الابعاد المعمارية مع الانشائية قبل التنفيذ وعلى أن ينطبق سنتر الاعمدة والقواعد المنفصلة المقامة عليها .
- (14) لا يحق للمالك او المقاول عمل اي تعديلات مهما كانت الا بعد الرجوع للمهندس المصمم .



PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

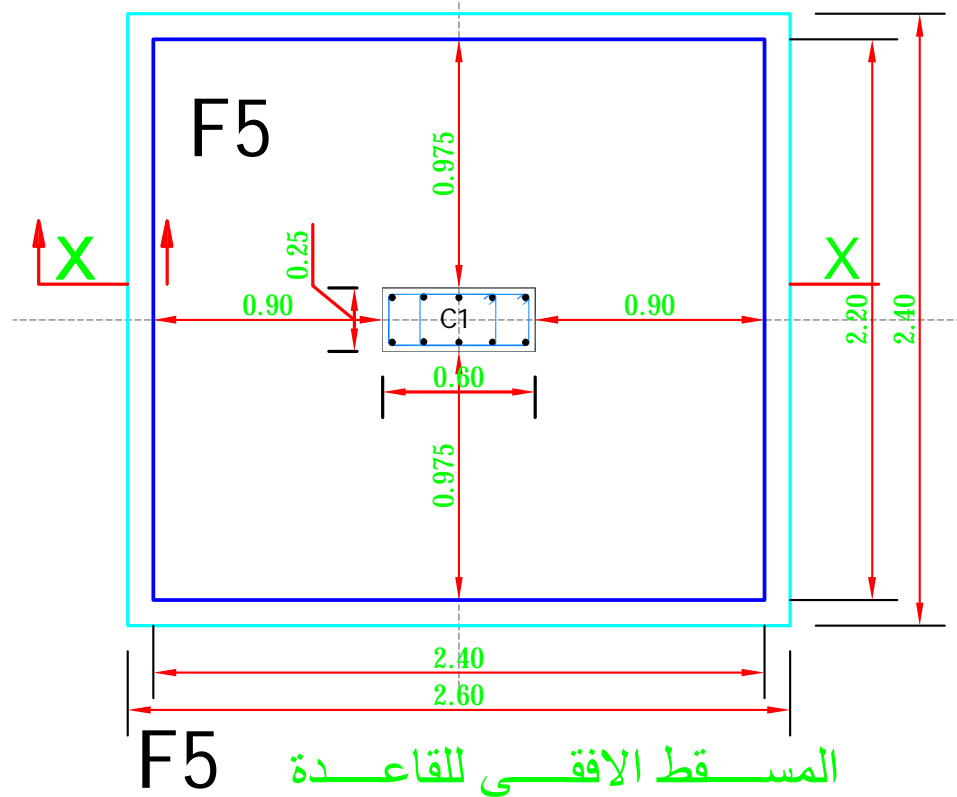
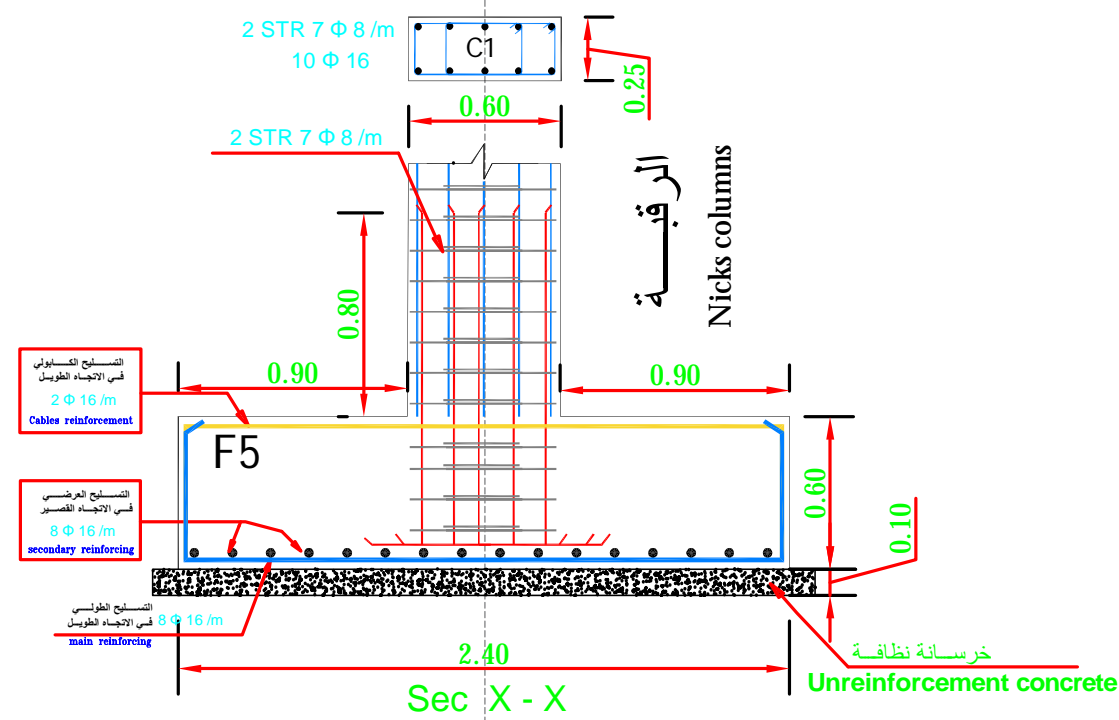
DRAWING TITLE:
Details of foundations.

DRAWING Type:
Civil

Drawing Status: SCALE: As Shown
Design Drawing Paper Size:

DESIGNED BY : MSF
DATE: July ,2025

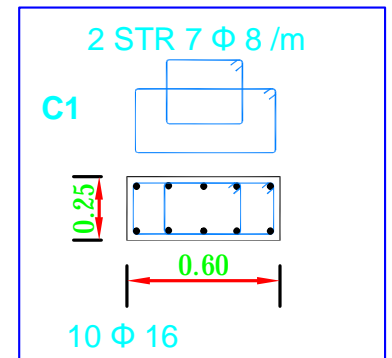
DWG.NO:
STR-012



عدد 2

***ملاحظات:-**

- (1) قابلية تحمل التربة المصمم عليها 18t/m2 وعلى المقاول مسؤولية التأكد من ذلك .
- (2) صممت الأساسات لتحمل ثلاثة ادوار فقط .
- (3) يتم الحفر حتى عمق الصالح للتأسيس .
- (4) يتم عمل فرشاة من الخرسانة العادية تحت القواعد بسماكة 10 سم وتزيد ابعاد القواعد بمقدار 10 سم من كل جانب .
- (5) حديد كوابيل الفرش والغطا يعتبر من ضمن حديد التسليح .
- (6) مقاومة الخرسانة المسلحة بعد 28 يوم يجب ان لا تقل عن 350Kg/cm2 في الاعمدة و 300Kg/cm2 في القواعد .
- (7) مقاومة حديد التسليح على الشد يجب ان لا تقل عن 2800Kg/cm2 في جميع العناصر الانشائية
- (8) يلزم استخدام حديد نظيف خالي من الصدأ .
- (9) يلزم دهان القواعد والرقاب والميد بالأسفلت الحار ثلاثة اوجة .
- (10) ضرورة استخدام الهزاز الميكانيكي عند الصب لجميع العناصر الخرسانية .
- (11) يتم الرش بالماء مرتين باليوم لمدة اسبوعين لجميع العناصر الخرسانية مع استخدام الخيش للاعمدة .
- (12) يجب ان تكون مواد البناء المستخدمة نظيفة وخالية من اي مواد غريبة .
- (13) يتم مطابقة الابعاد المعمارية مع الانشائية قبل التنفيذ وعلى أن ينطبق سنتر الاعمدة والقواعد المنفصلة المقامة عليها .
- (14) لا يحق للمالك او المقاول عمل اي تعديلات مهما كانت الا بعد الرجوع للمهندس المصمم .



Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Details of foundations.

DRAWING Type:

Civil

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

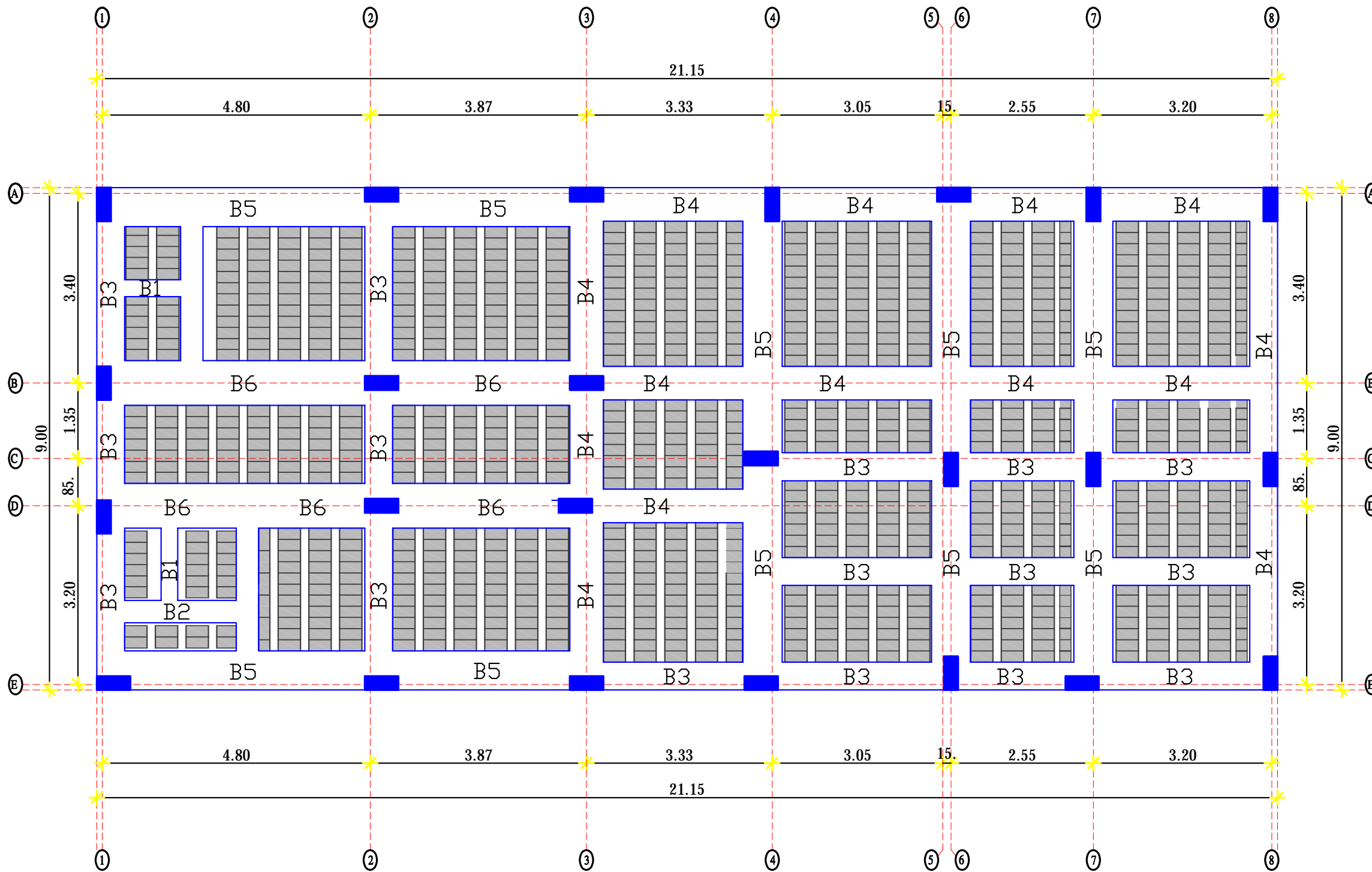
MSF

DATE:

July ,2025

DWG.NO:

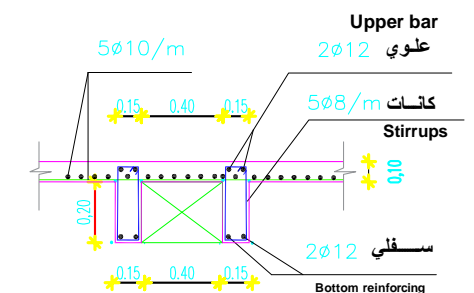
STR-013



المسقط الأفقي لتسليح السقف

* ملاحظات :-

- (1) ارتفاع الجسر يشمل ارتفاع البلاطة العلوية التي سماكتها 10 سم .
- (2) سماكة بلاطة السقف الهوردي مع تسليحها كما هو موضح في التفصيلة .
- (3) يتم التكميل في الجسور كما هو موضح في تفصيلة الجسور .
- (4) مقاومة الخرسانة المسلحة بعد 28 يوم يجب ان لا تقل عن 300Kg/cm^2 .
- (5) مقاومة حديد التسليح على الشد يجب لا تقل عن 2800Kg/cm^2 .
- (6) يلزم استخدام حديد نظيف خالي من الصدأ .
- (7) ضرورة استخدام الهزاز الميكانيكي عند الصب لجميع العناصر الخرسانية .
- (8) يتم الرش بالماء مرتين باليوم لمدة اسبوعين لجميع العناصر الخرسانية .
- (9) يجب ان تكون مواد البناء المستخدمة نظيفة وخالية من اي مواد غريبة .
- (10) لا يحق للمالك او المقاول عمل اي تعديلات مهما كانت الا بعد الرجوع للمهندس المصمم .
- (11) يتم استخدام الثخانات في المناطق المزدحمة بحديد التسليح .
- (12) يتم ربط الكانات في الجسور من جميع الجهات الاربع .
- (13) يتم استخدام الثخانات في المناطق المزدحمة بحديد التسليح .
- (14) الجسور التي عرضها اكبر من 60 سم ينفذ لها كانات مزدوجة محيطية ومزدوجة .
- (15) تنزع الشدة الخشبية بعد ثلاثة اسابيع من الصب .



تفصيلة الأعصاب

Funded by:



OPERATING CENTER GENEVA
CENTRE OPÉRATIONNEL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Plan of Roof Reinforcement

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

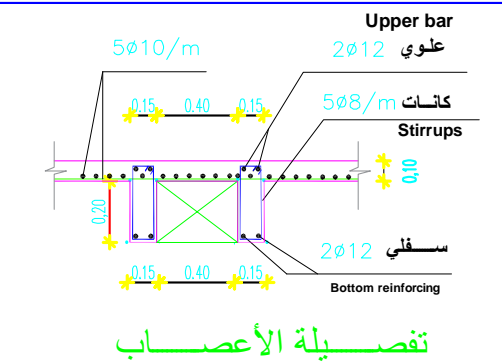
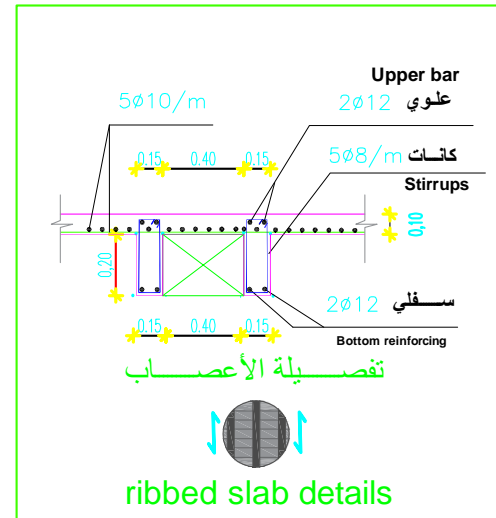
STR-014

Schedule of Roof Reinforcement

الجدول الإنشائي لتسليح السقف

code	H (cm) ارتفاع الجسر مع البلاطة	B (cm) عرض	Bottom Reinforcement		Top Reinforcement	Stirrups	الكانات		(جديد الكابولي) الاضفائي علوي	
			Bottom السفلي مستمر	Bent up سفلي المكسج	التسليح العلوي					
B1	30	30	3Ø16	—	2Ø16	7Ø8/m	6Ø8/m		—	
B2	30	40	2Ø16	2Ø16	2Ø16	7Ø8/m	6Ø8/m		—	
B3	30	50	3Ø16	2Ø16	3Ø16	8Ø8/m	7Ø8/m		—	
B4	30	60	5Ø16	2Ø16	3Ø16	8Ø8/m	7Ø8/m	Double	—	
B5	30	70	7Ø16	3Ø16	4Ø16	8Ø8/m	7Ø8/m	Double	—	
B6	30	80	7Ø18	3Ø18	5Ø18	8Ø8/m	7Ø8/m	Double	—	

البلاطة العلوية سمك 10 سم وتسليح 5Ø10/m فرش وغطاء
عرض العصب 15 سم وبتسليح 2Ø12 سفلي و 2Ø12 علوي وكانات قطر 8 ملم لكل 20 سم
ضرورة استمرارية الأعصاب كما في المسقط



* ملاحظات :-

- ارتفاع الجسر يشمل ارتفاع البلاطة العلوية التي سماكتها 10 سم.
- سماكة بلاطة السقف الهوردي مع تسليحها كما هو موضح في التفصيلة.
- يتم التسليح في الجسور كما هو موضح في تفصيلة الجسور.
- مقاومة الخرسانة المسلحة بعد 28 يوم يجب ان لا تقل عن 300Kg/cm2.
- مقاومة حديد التسليح على الشد يجب لا تقل عن 2800Kg/cm2.
- يلزم استخدام حديد نظيف خالي من الصدأ.
- ضرورة استخدام الهزاز الميكانيكي عند الصب لجميع العناصر الخرسانية.
- يتم الرش بالماء مرتين باليوم لمدة اسبوعين لجميع العناصر الخرسانية.
- يجب ان تكون مواد البناء المستخدمة نظيفة وخالية من اي مواد غريبة.
- لا يحق للمالك او المقاول عمل اي تعديلات مهما كانت الا بعد الرجوع للمهندس المصمم.
- يتم استخدام الثخانات في المناطق المزدهمة بحديد التسليح.
- يتم ربط الكانات في الجسور من جميع الجهات الاربع.
- يتم استخدام الثخانات في المناطق المزدهمة بحديد التسليح.
- الجسور التي عرضها أكبر من 60 سم ينفذ لها كانات مزدوجة محيطية ومزدوجة.
- تنزع الشدة الخشبية بعد ثلاثة اسابيع من الصب.

Funded by:



OPERATING CENTER GENEVA
CENTRE OPÉRATIONNEL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Schedule of Roof Reinforcement

DRAWING Type:

Civil

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

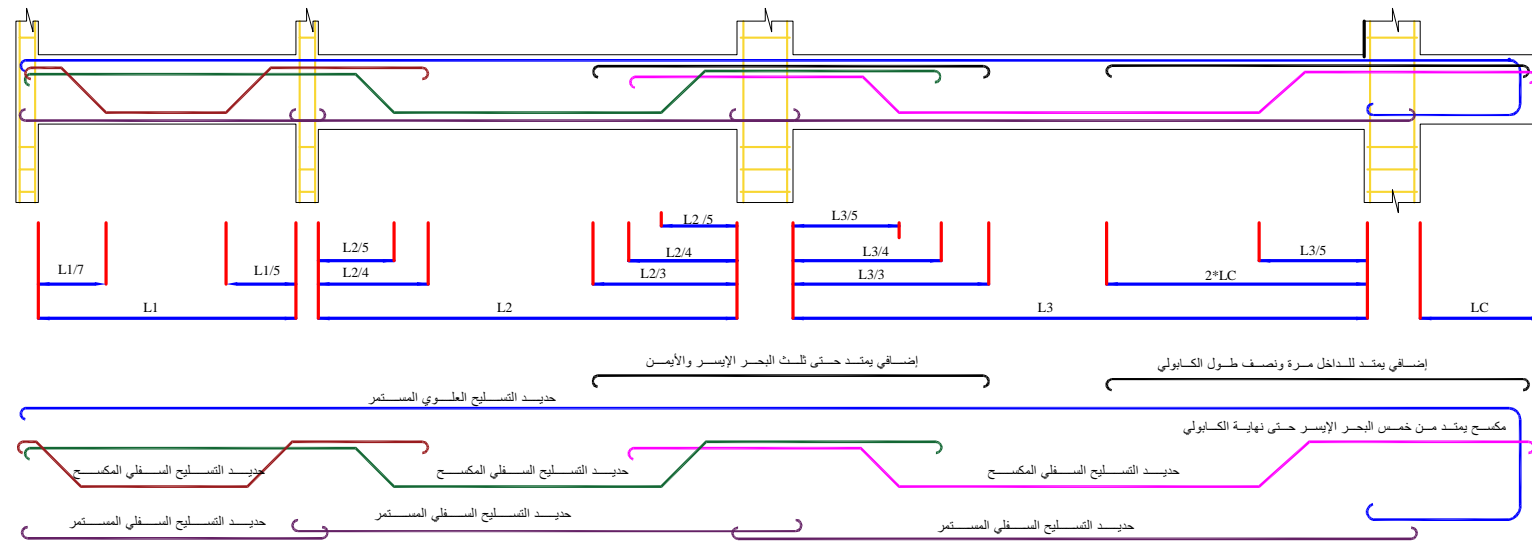
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DATE:

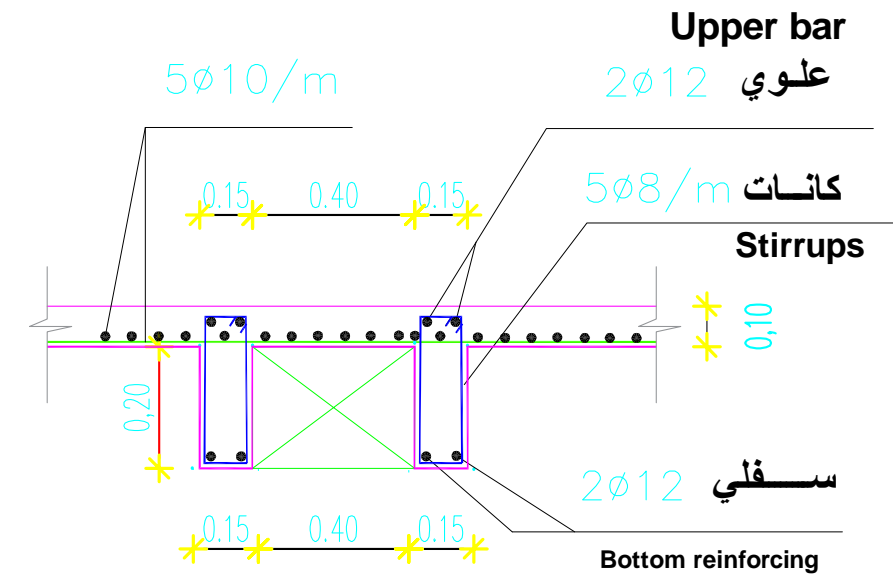
July ,2025

DWG.NO:

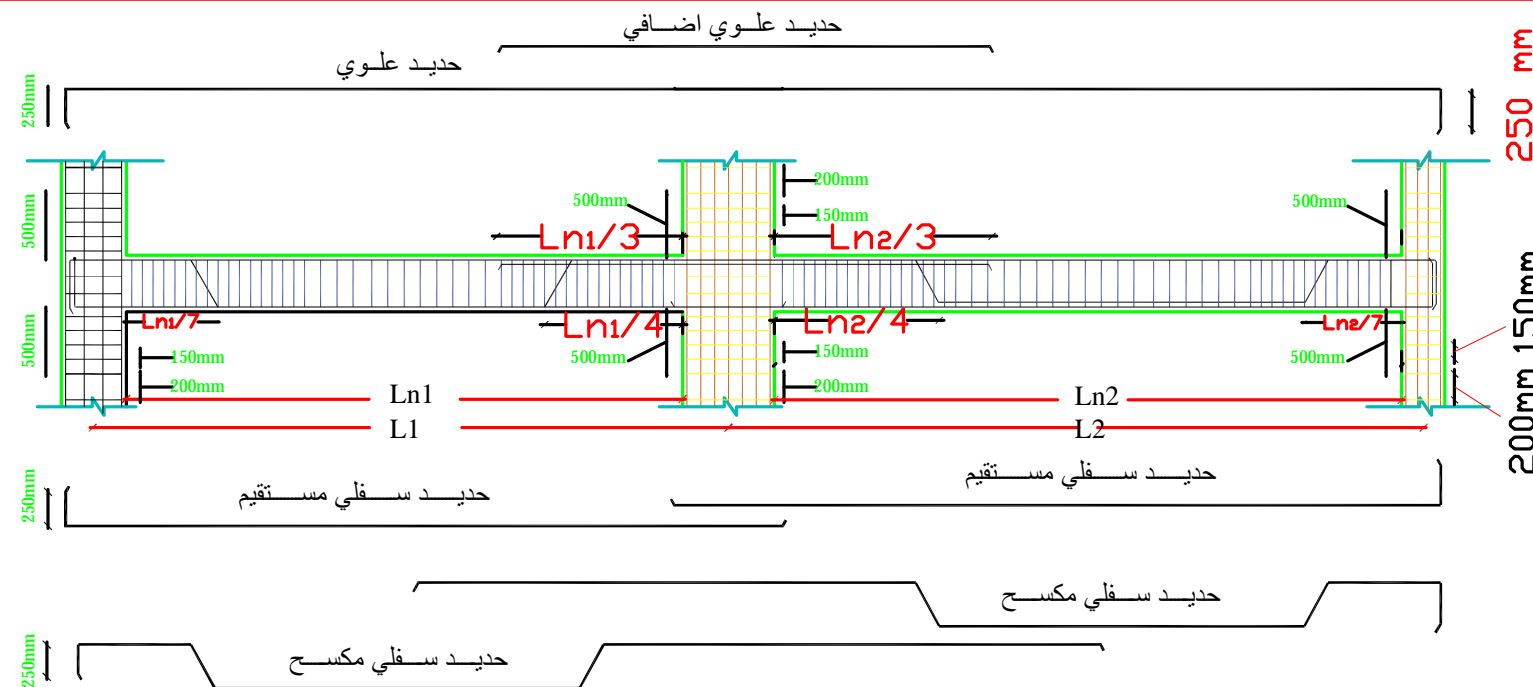
STR-015



مقطع عام للجسور ثلاثة بحار وكابولي
TYPICAL DETAIL OF CONTINUOUS BEAMS



تفصيلة الأعمصاب
 ribbed slab details



General section showing details reinforcement and distance of bent up of beam

Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
 Ibb Government / Yemen

DRAWING TITLE:

Details of beams .

DRAWING Type:

Civil

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

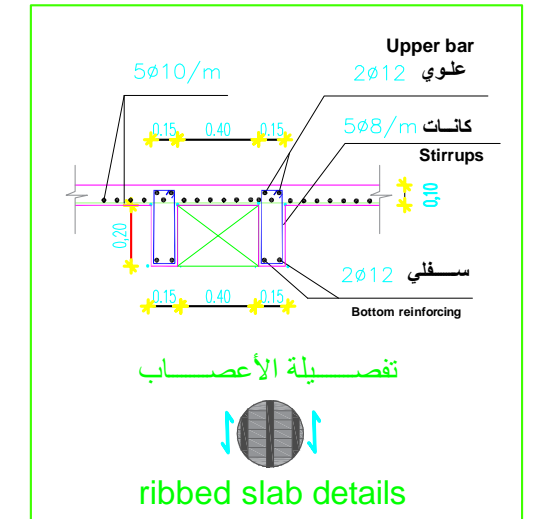
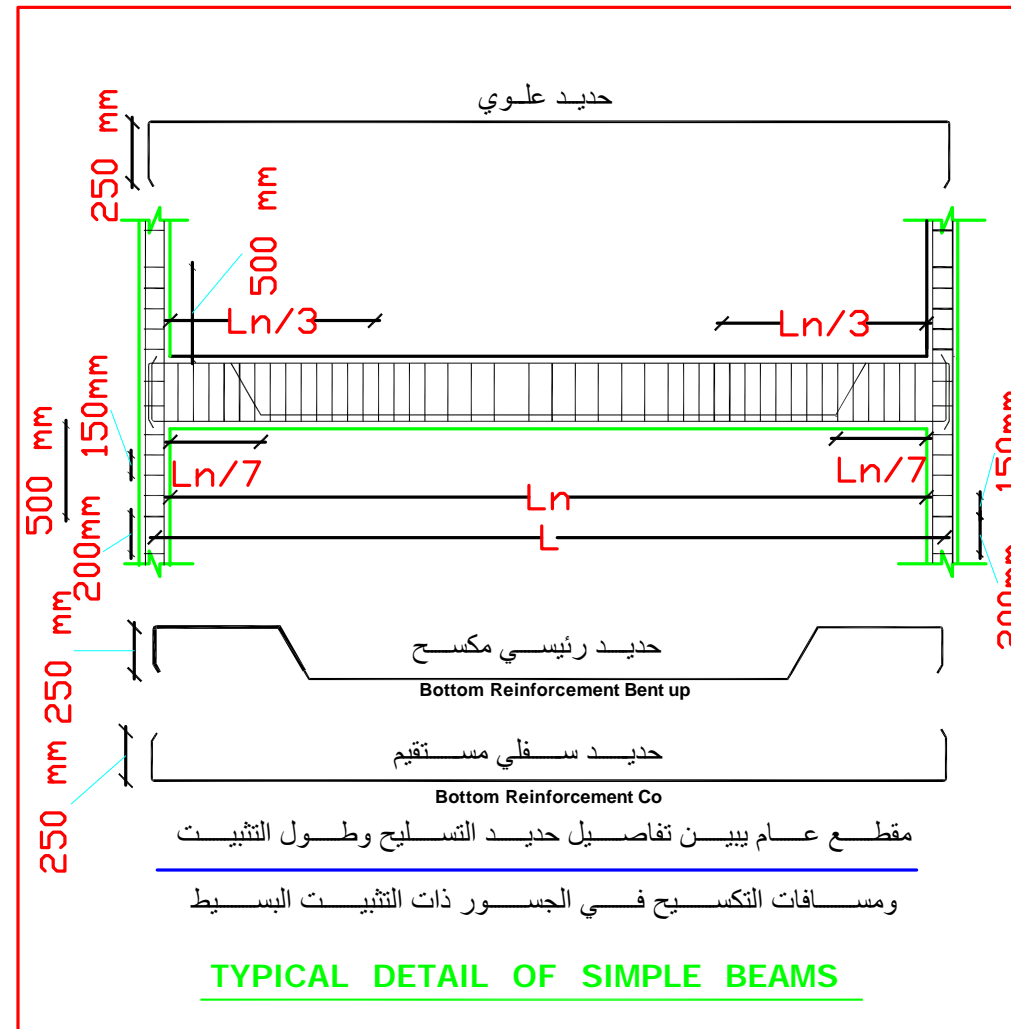
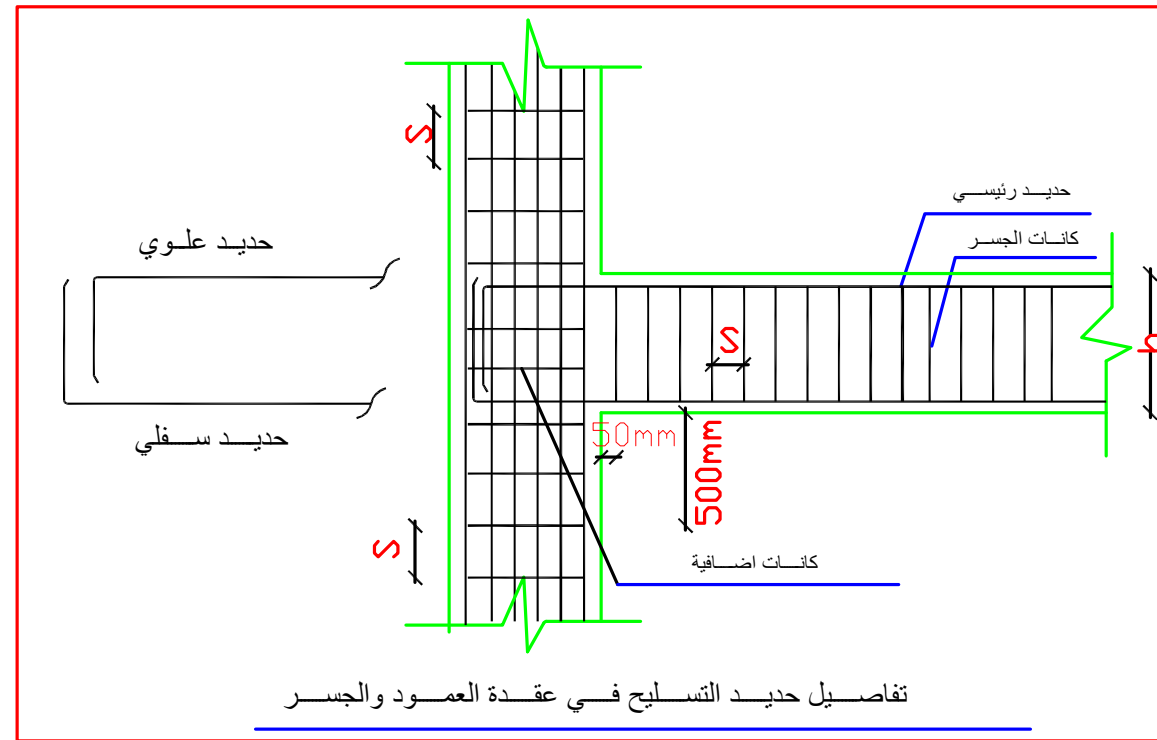
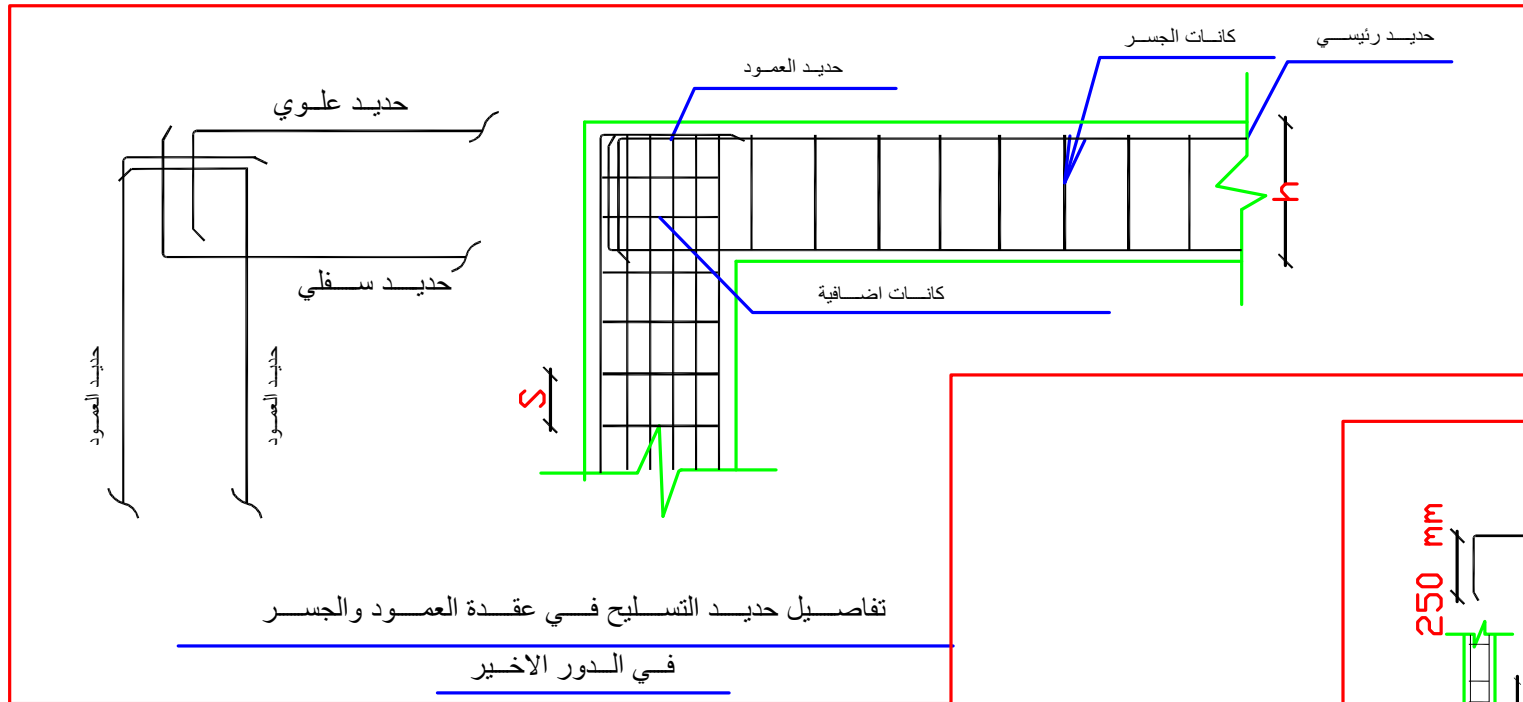
MSF

DATE:

July ,2025

DWG.NO:

STR-016



Funded by:

MEDECINS SANS FRONTIERES
OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

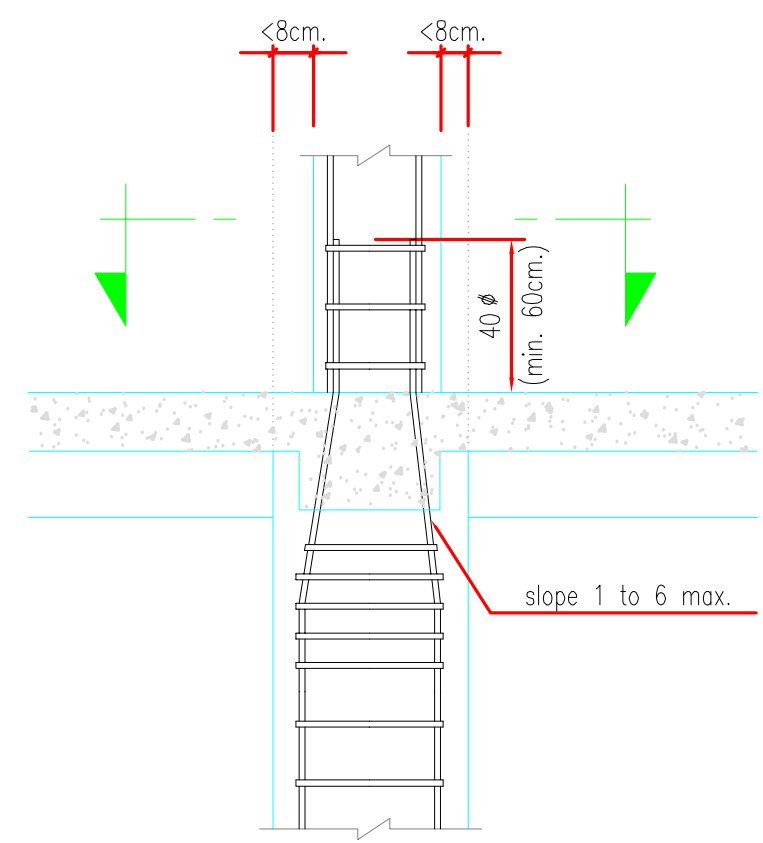
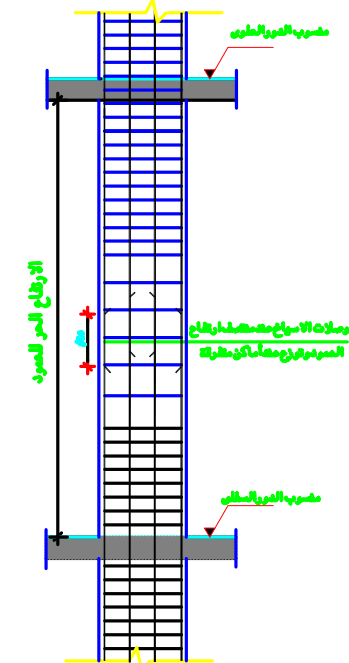
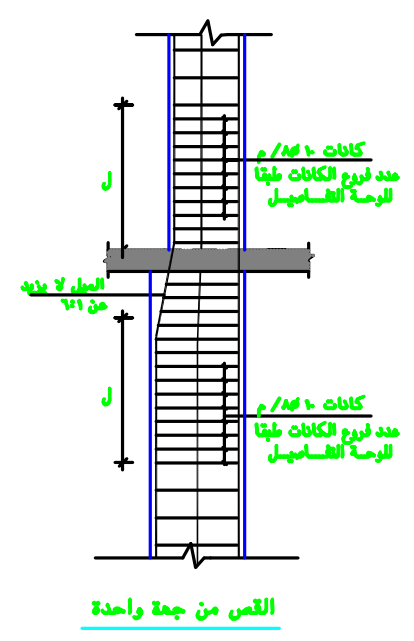
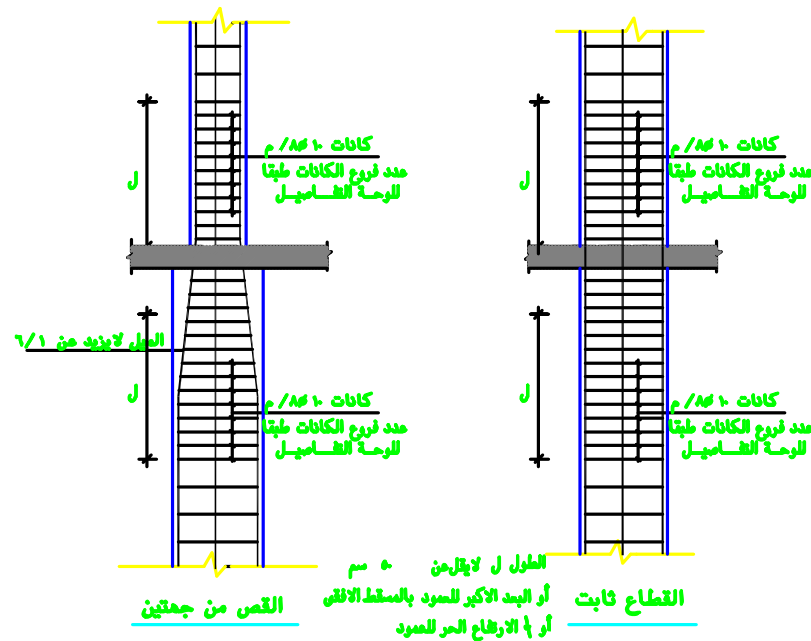
DRAWING TITLE:
Details of beams .

DRAWING Type:
Civil

Drawing Status: Design Drawing
SCALE: As Shown
Paper Size:

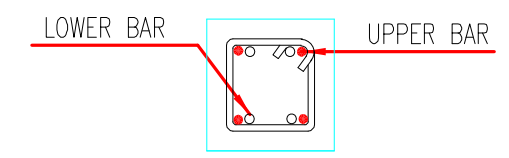
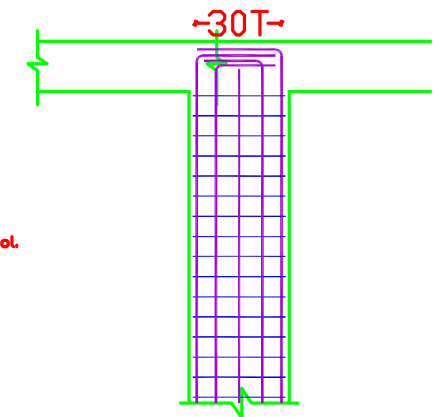
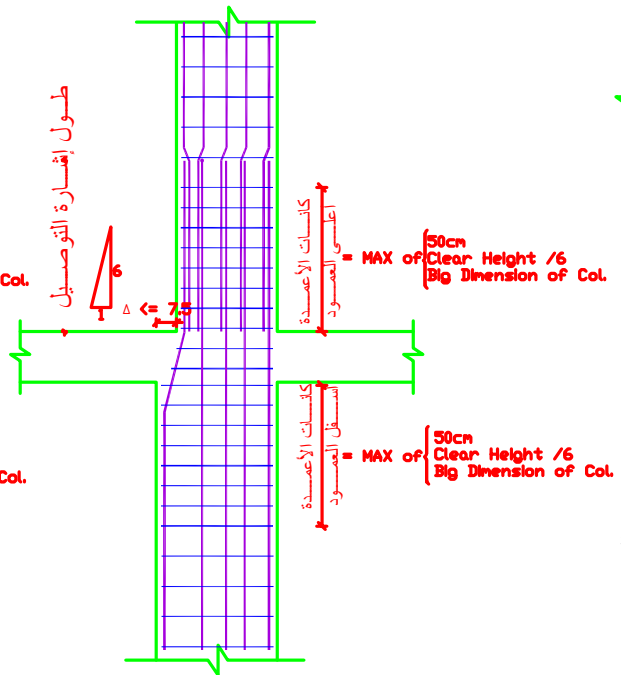
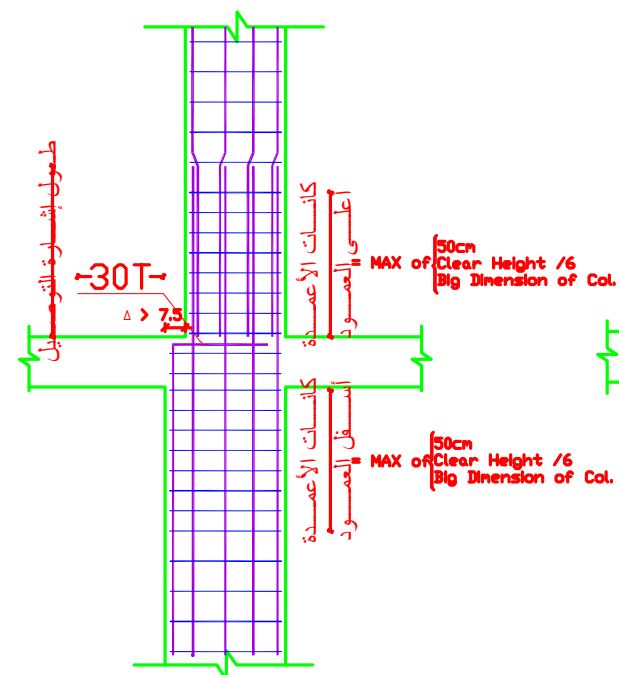
DESIGNED BY : MSF
DATE: July ,2025

DWG.NO:
STR-017



تكتيف الكانات عند نهايات و بدايات الاعمدة

أماكن وأطوال وصلات تسليح الاعمدة



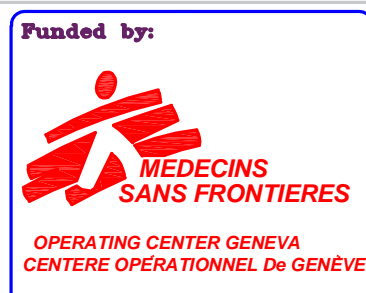
- USE STRAIGHT DOWELS LAPPING 40 Ø WHERE UPPER COLUMN HAS LARGER NUMBER OF BARS THAN LOWER COLUMN; USE DOWELS FOR EXCESS NUMBER OF UPPER COLUMN BARS

TYPICAL DETAIL FOR CHANGE IN COLUMN WIDTH

مقطع عام يبين تفاصيل مساحة وتسليح العمود عند اختلاف المقاطع

مقطع عام يبين تفاصيل مساحة وتسليح العمود عند اختلاف المقاطع

مقطع عام يبين تفاصيل حديد التسليح وكيفية توقف الحديد في أعمدة الدور الأخير



PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:
Details of columns .

DRAWING Type:
Civil

Drawing Status: Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY : MSF

DATE: July ,2025

DWG.NO:
STR-018

Third:

Electrical Drawings

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

Cover of Electrical Drawings

DRAWING Type:

Electrical

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

ELE-000

Table of Content

No	Drawing Title	No	Drawing Title
ELE-001	Cable Trench Routing Site Plan Layout / Aerial Photo	ELE-014	Laboratory Roof Floor Power System for HVAC System
ELE-002	Cable Trench Routing Site Plan Layout.	ELE-015	Laboratory Ground Floor Fire Detection & Fire Alarm System
ELE-003	Earthing and Bonding System Site Plan Layout.	ELE-016	Single Line Diagram distribution system Layout.
ELE-004	Detail 01	ELE-017	Single Line Diagram For Final distribution Panel Layout.
ELE-005	Detail 02	ELE-018	Electrical Details 1
ELE-006	Lightning Protection System Site Plan Layout.	ELE-019	Electrical Details 2
ELE-007	Site Plan External Lighting system Layout.	ELE-020	Electrical Details 3
ELE-008	Laboratory Ground Floor Lighting System Layout.	ELE-021	Electrical Details 4
ELE-009	Laboratory Ground Floor Sign& Exit and Emergency Lighting System	ELE-022	Electrical Details 5
ELE-010	Laboratory Ground Floor General Power System Layout.	ELE-023	Electrical Details 6
ELE-011	Laboratory Ground Floor Essential Power System Layout.	ELE-024	Electrical Details 7
ELE-012	Laboratory Ground Floor UPS Backup Power System Layout.		
ELE-013	Laboratory Ground Floor Power System for HVAC System Layout.		

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

Table of Content

DRAWING Type:

Electrical

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

ELE-000



Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

Cable Trench Routing
Site Plan Layout.

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

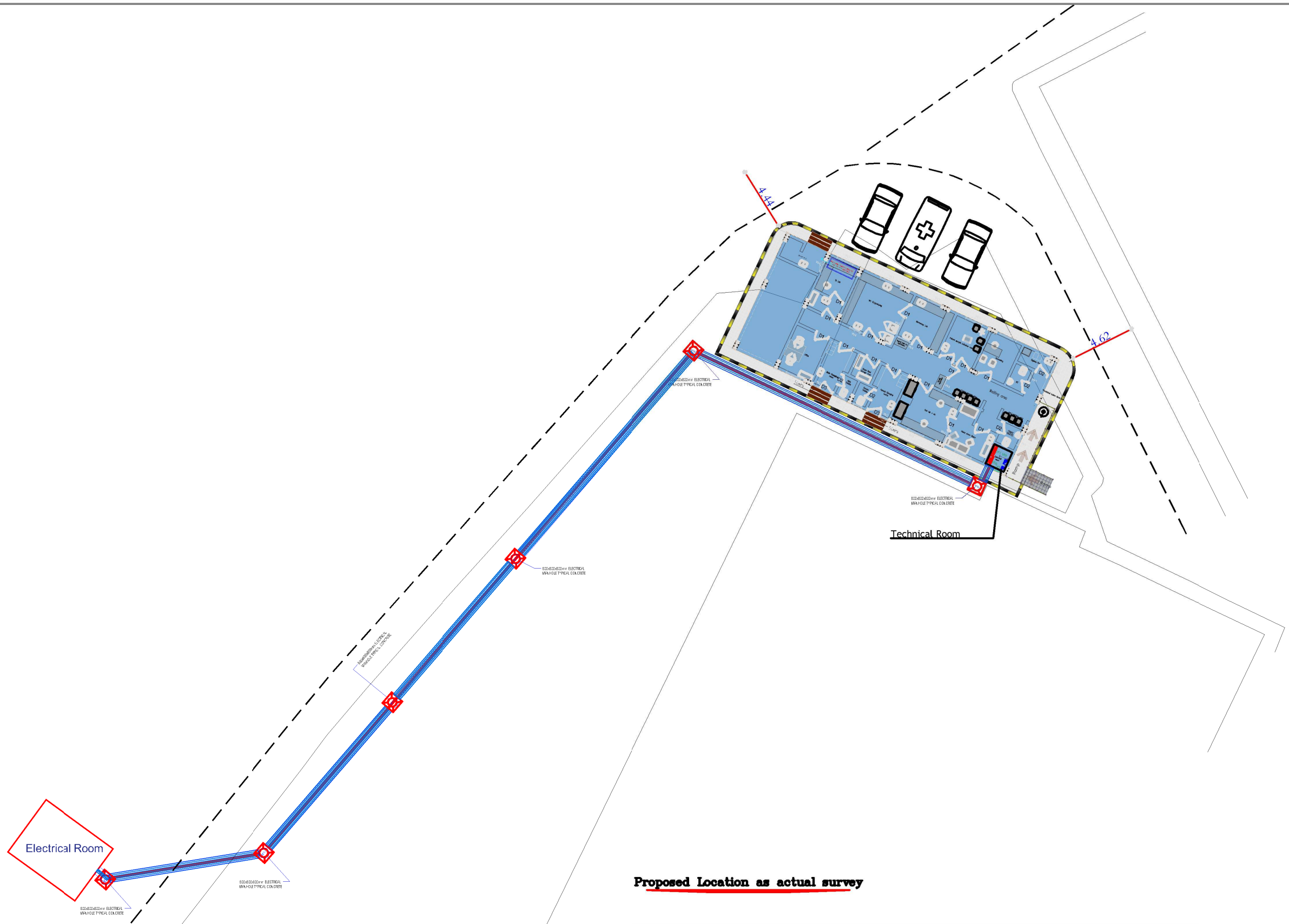
Paper Size:

DATE:

July ,2025

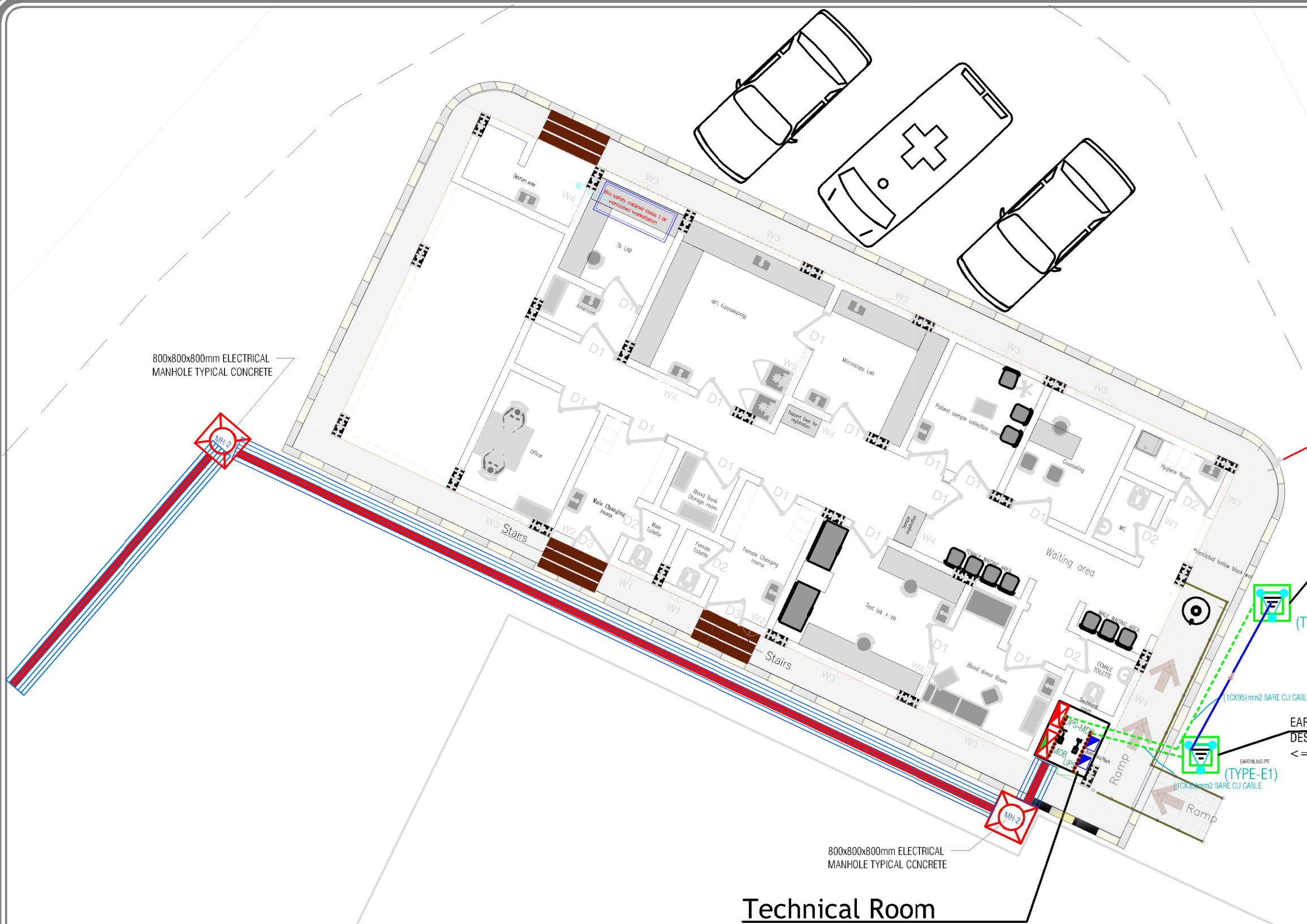
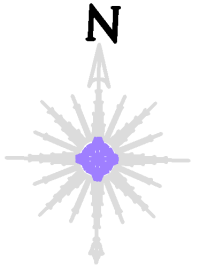
DWG.NO:

ELE-001



Proposed Location as actual survey

<p>Funded by:</p> <p>MEDECINS SANS FRONTIERES OPERATING CENTER GENEVA CENTRE OPERATIONAL De GENÈVE</p>	<p>PROJECT Title: Construction a new Laboratory for KILO Hospital</p>	<p>DRAWING TITLE: Cable Trench Routing Site Plan Layout.</p>	<p>Drawing Status: Design Drawing</p>	<p>SCALE: As Shown Paper Size:</p>	<p>DWG.NO: ELE-002</p>
	<p>PROJECT Location: KILO General Hospital - KILO District Ibb Government / Yemen</p>	<p>DRAWING Type: ELECTRICAL</p>	<p>DESIGNED BY : MSF</p>	<p>DATE: July ,2025</p>	



800x800x800mm ELECTRICAL MANHOLE TYPICAL CONCRETE

EARTH PIT FOR LV SYSTEM SHOULD BE DESIGNED NOT TO EXCEED < 1 OHM RESISTANCE.

EARTHING PIT (TYPE-E1)

EARTH PIT SHOULD BE DESIGNED NOT TO EXCEED <= 1 OHM RESISTANCE.

EARTHING PIT (TYPE-E1)

800x800x800mm ELECTRICAL MANHOLE TYPICAL CONCRETE

Technical Room

Funded by:

MEDECINS SANS FRONTIERES
OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:
Earthing and Bonding System Site Plan Layout.

DRAWING Type:
ELECTRICAL

Drawing Status:
Design Drawing

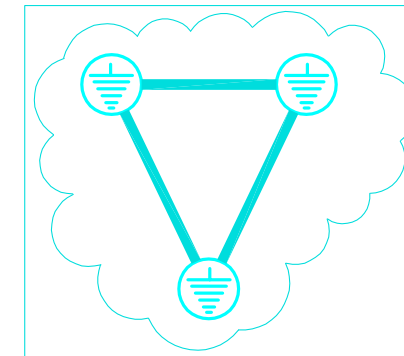
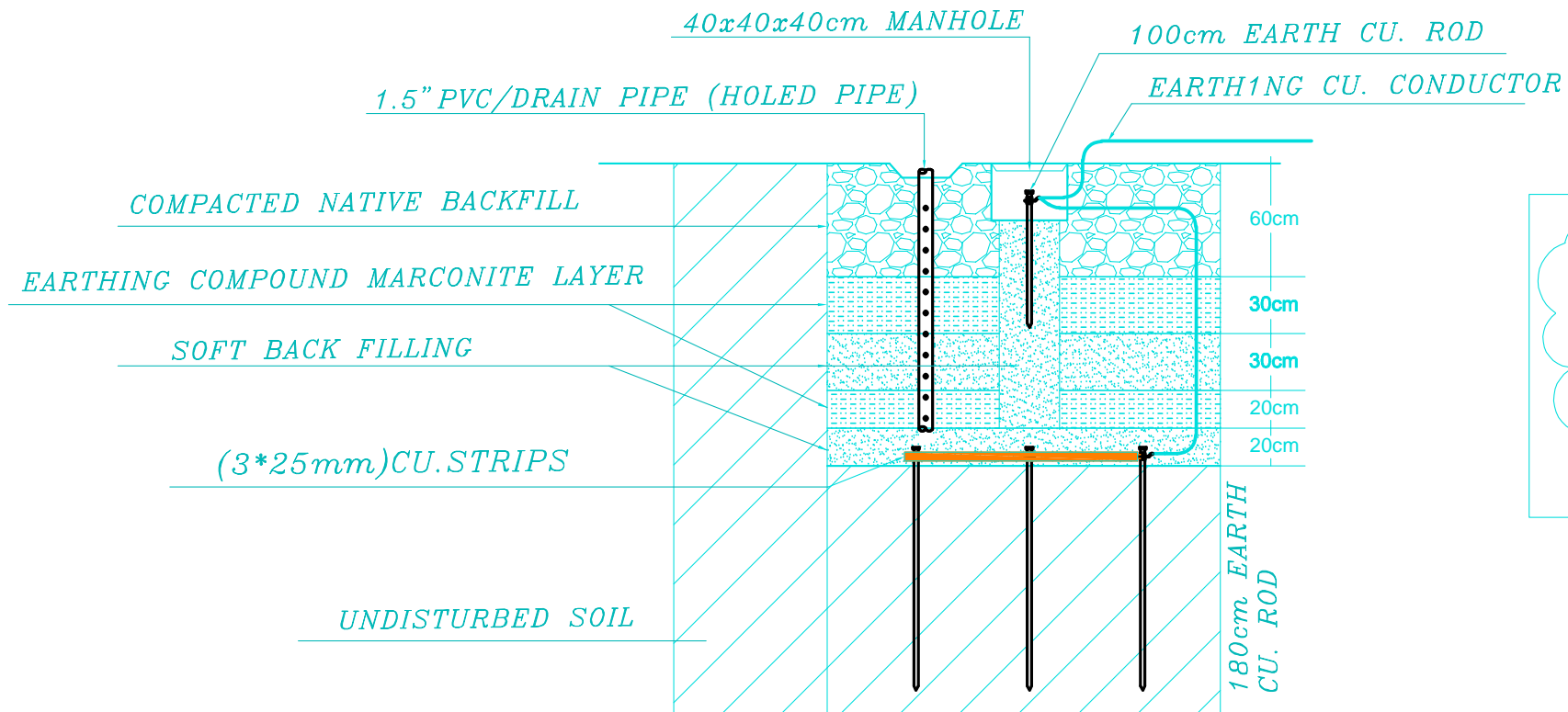
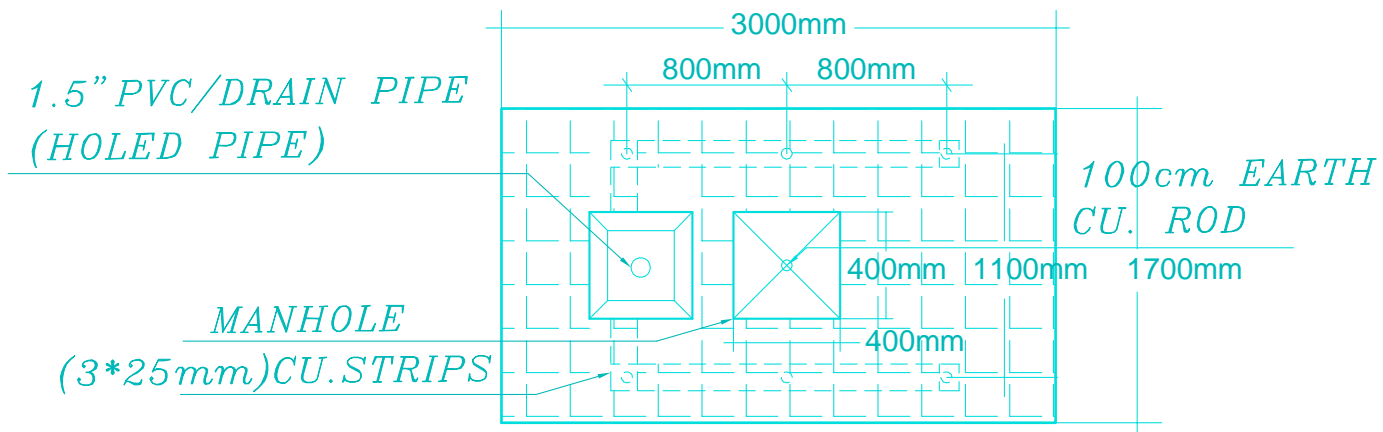
DESIGNED BY :
MSF

SCALE: As Shown
Paper Size:

DATE:
July ,2025

DWG.NO:

ELE-003



EARTH ING PIT (TAPE E1)

DETAIL 01

Funded by:



OPERATING CENTER GENEVA
CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

Detail 01

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

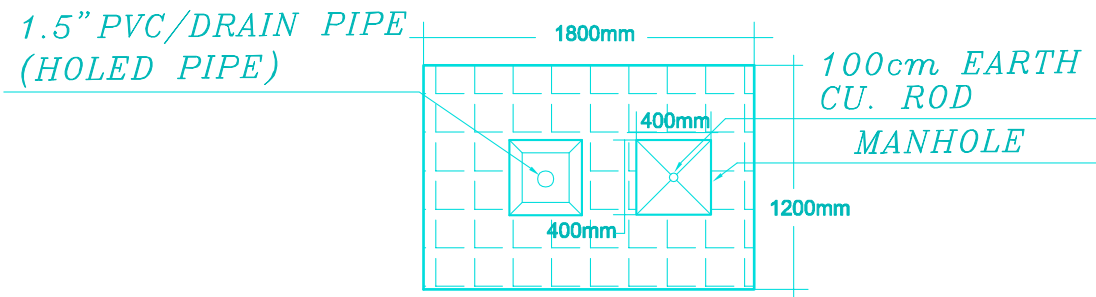
Paper Size:

DATE:

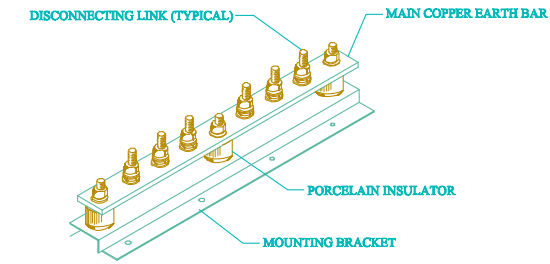
July ,2025

DWG.NO:

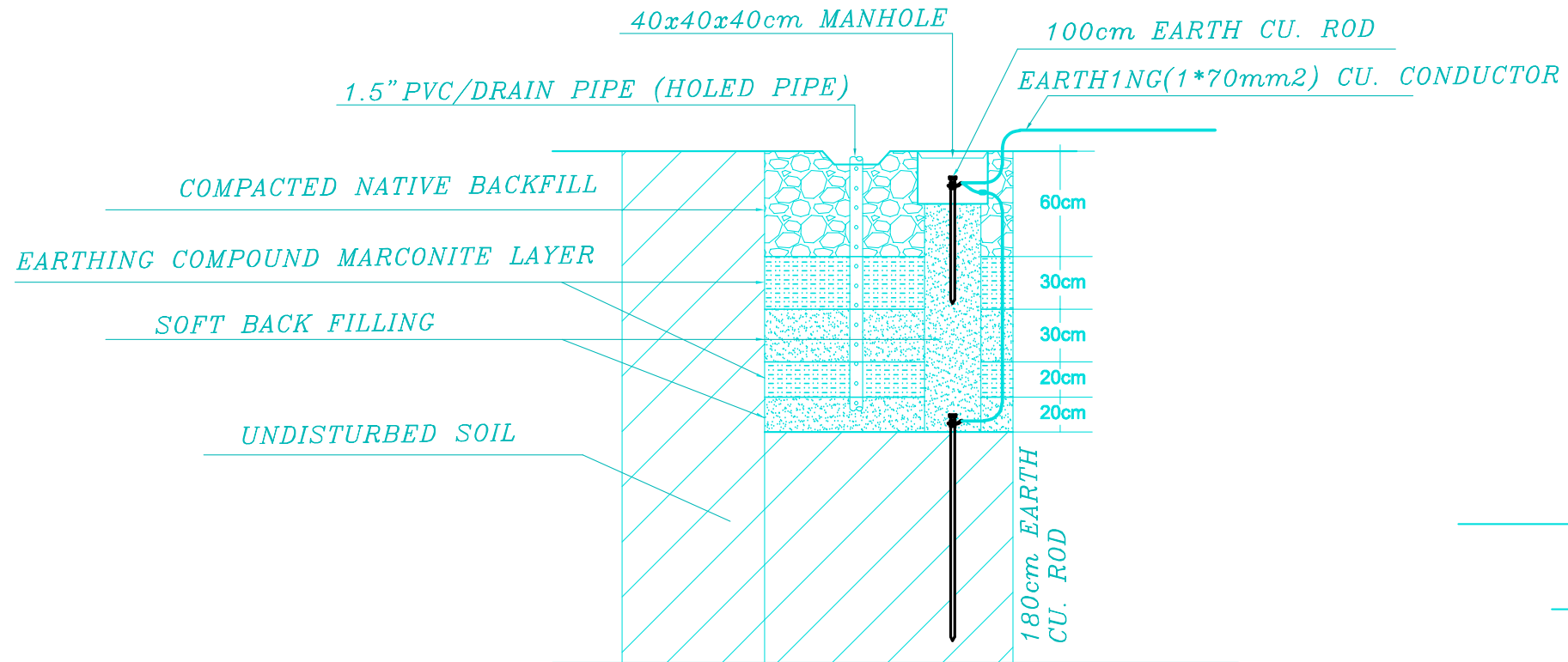
ELE-004



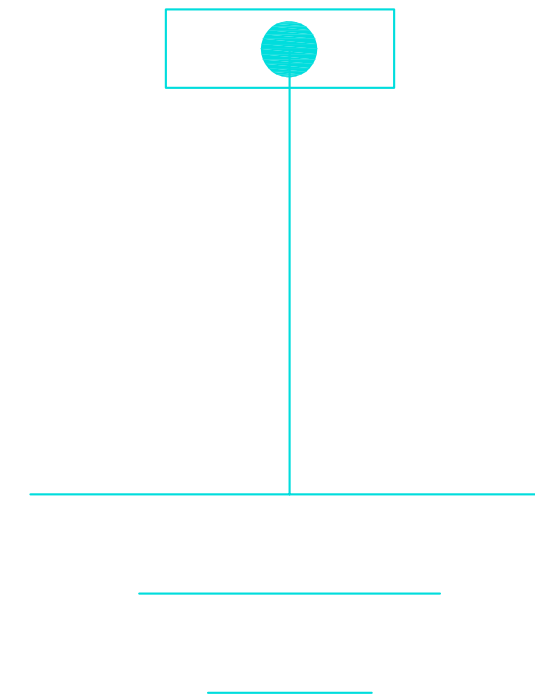
EARTH ING PIT TAPE 2



EARTH BAR DISCONNECTING AND BONDING LINKS



EARTH ING PIT (TAPE E2)



DETAIL 02

Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

Detail 02

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

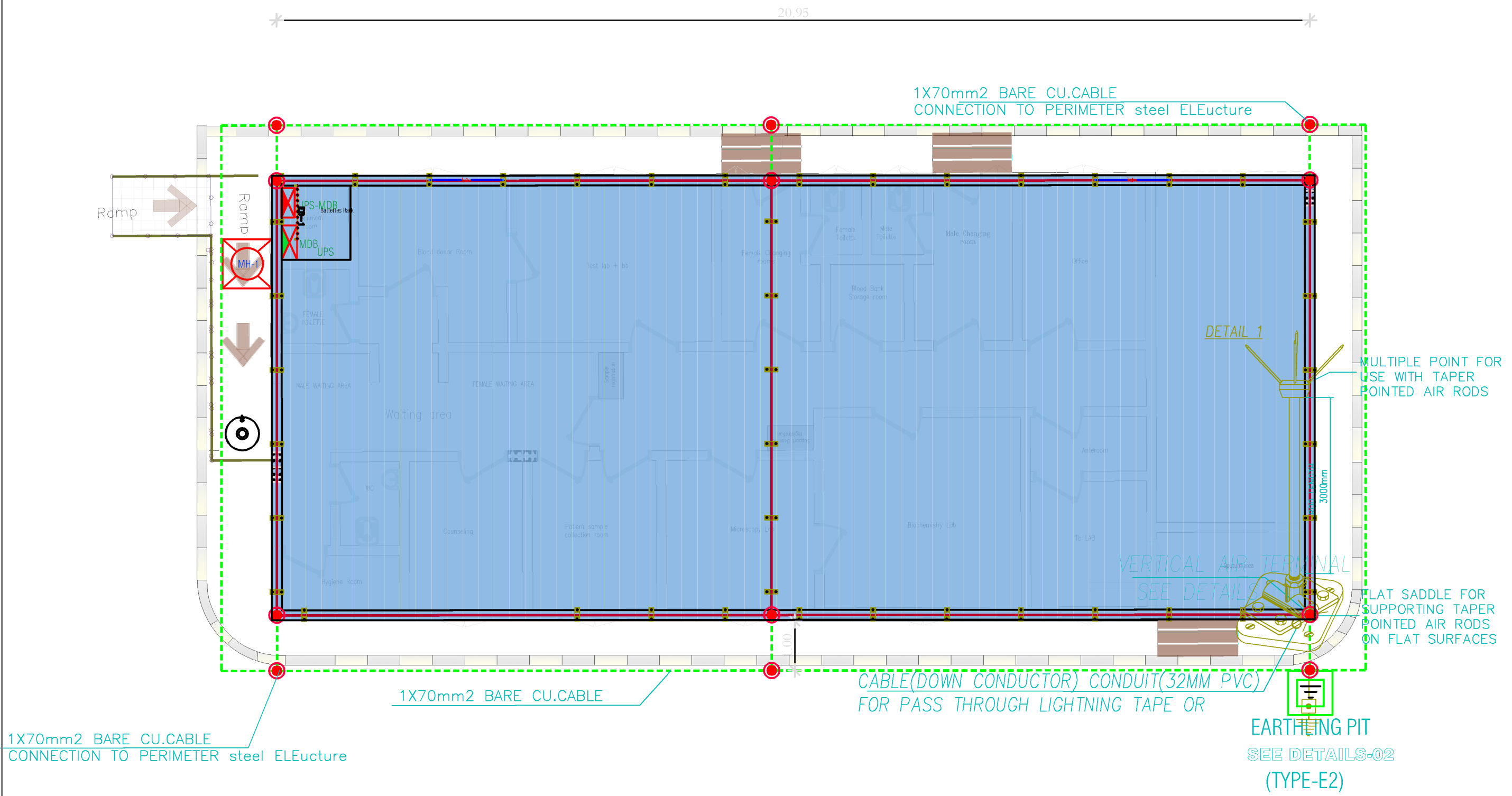
MSF

DATE:

July ,2025

DWG.NO:

ELE-005



Funded by:



PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:
Lightning Protection System
Site Plan Layout.

DRAWING Type:
ELECTRICAL

Drawing Status:
Design Drawing

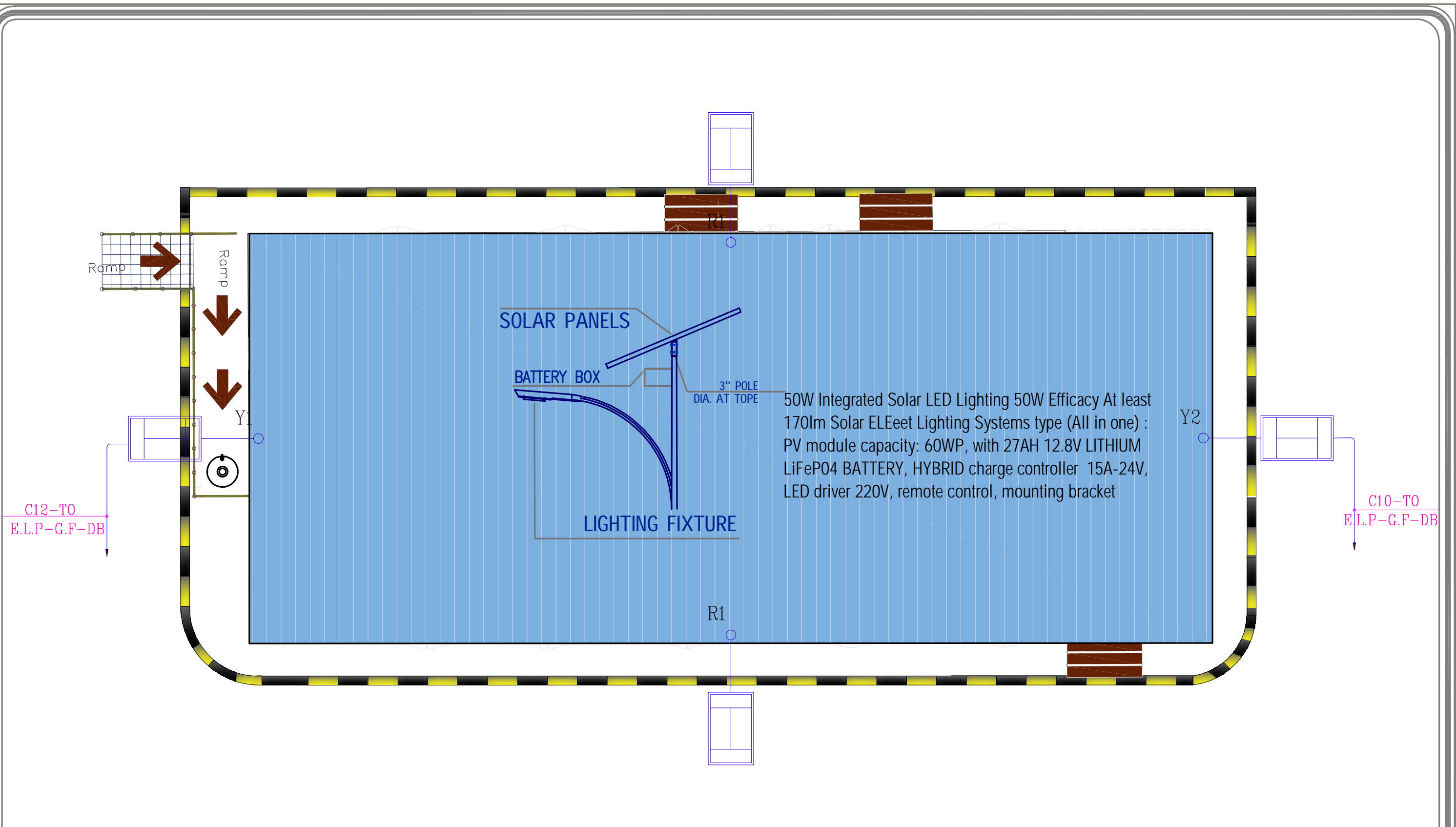
DESIGNED BY :
MSF

SCALE: As Shown
Paper Size:

DATE:
July ,2025

DWG.NO:

ELE-006



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

**Site Plan
External Lighting system Layout.**

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

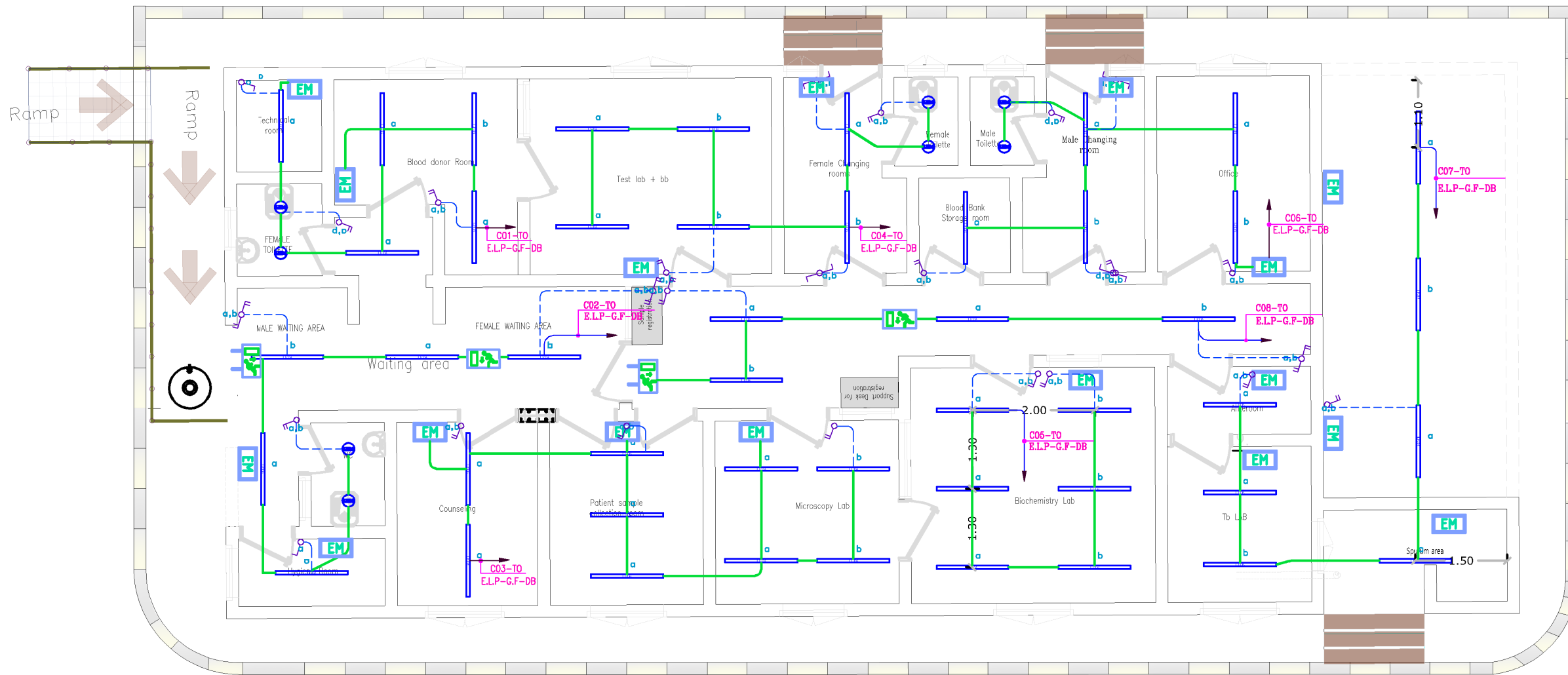
Paper Size:

DATE:

July ,2025

DWG.NO:

ELE-007



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

**Laboratory Ground FLOOR
Lighting System**

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

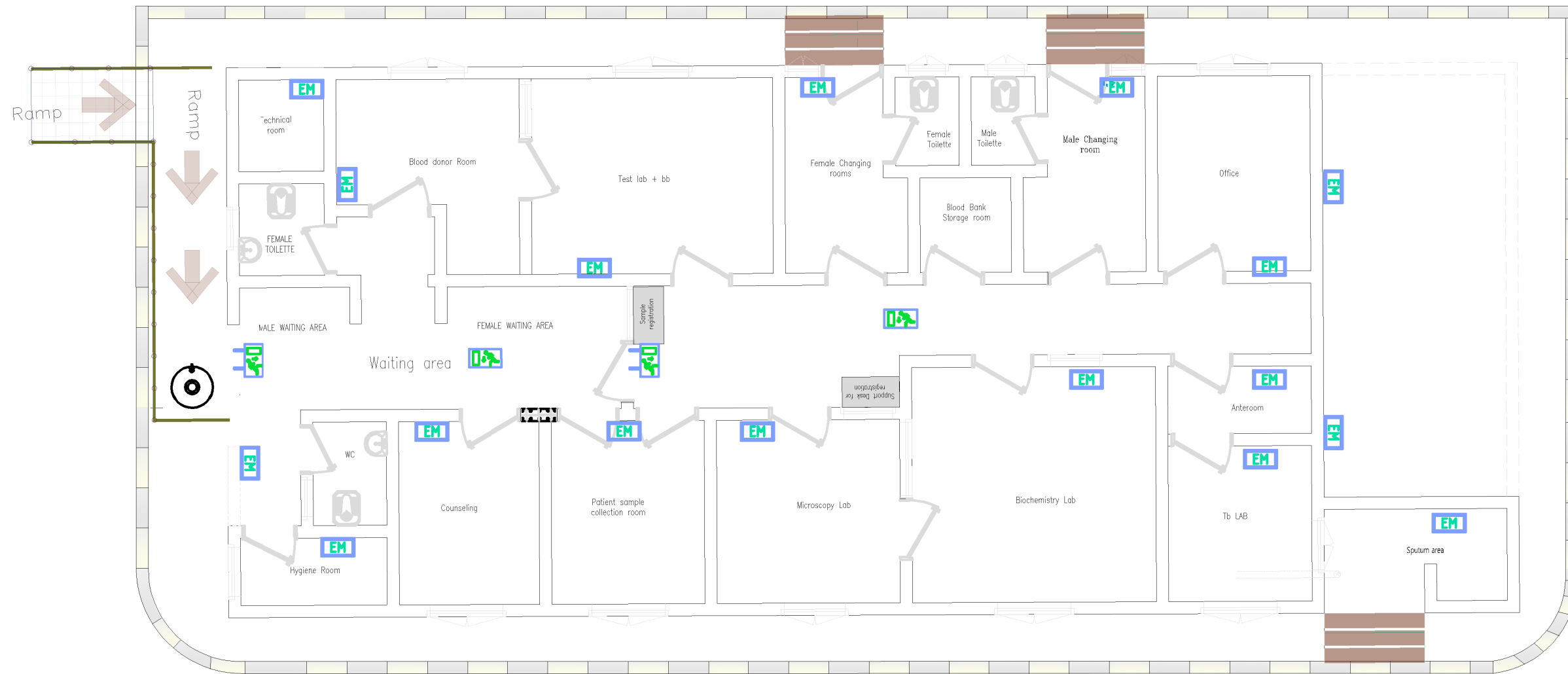
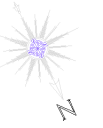
Paper Size:

DATE:

July ,2025

DWG.NO:

ELE-008



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

**Laboratory Ground Floor Sign& Exit
and Emergency Lighting System**

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

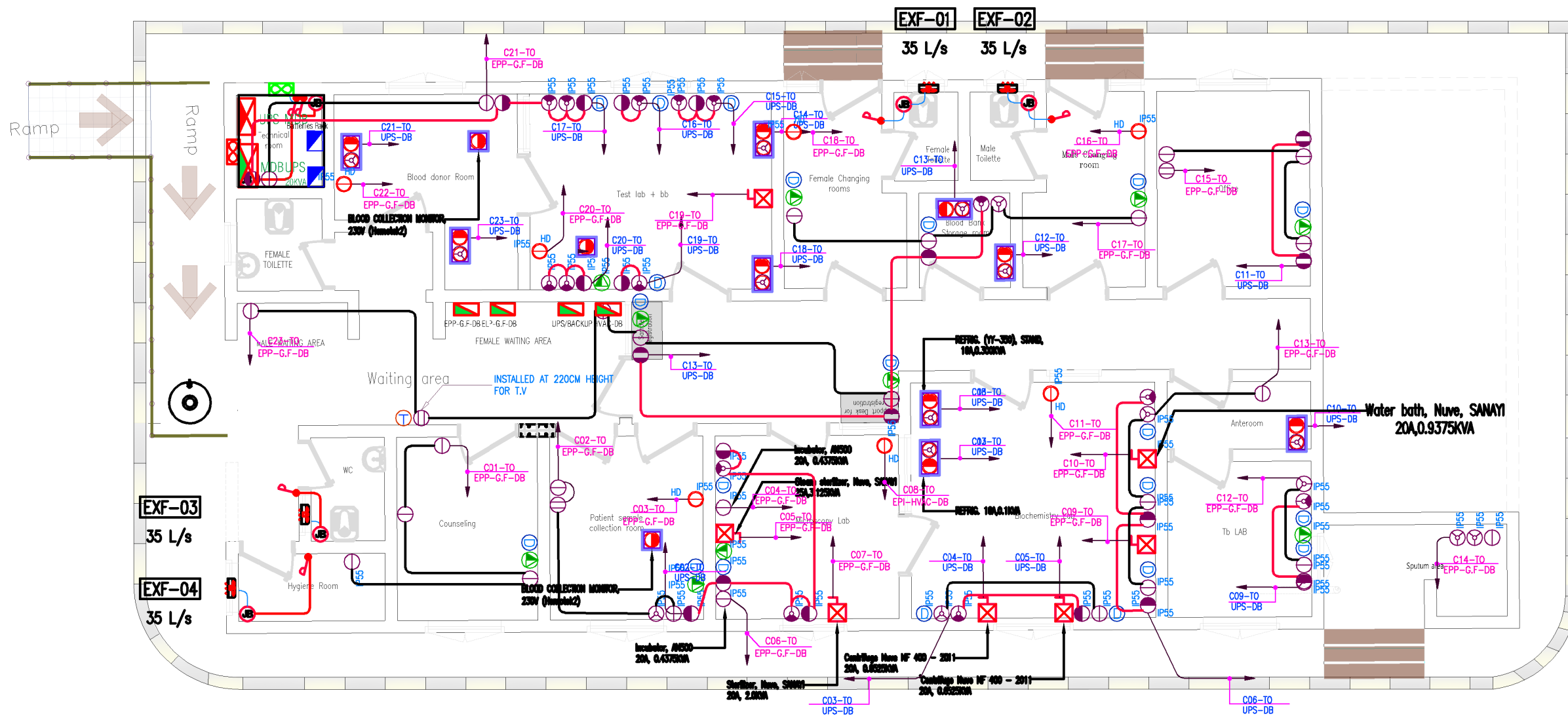
Paper Size:

DATE:

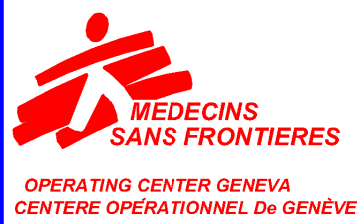
July ,2025

DWG.NO:

ELE-009



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

**Laboratory Ground Floor General
Power System Layout.**

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

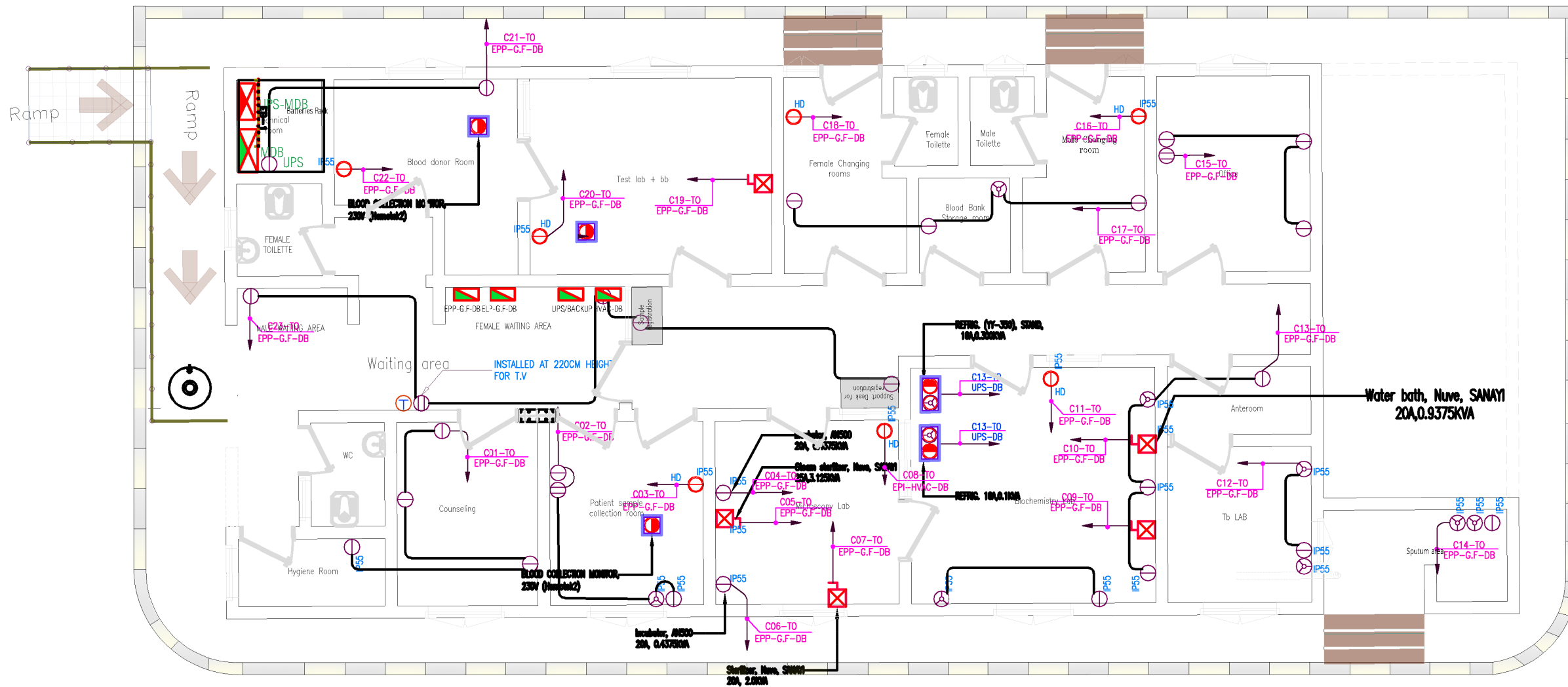
Paper Size:

DATE:

July ,2025

DWG.NO:

ELE-010



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

**Laboratory Ground Floor
Essential Power System Layout.**

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

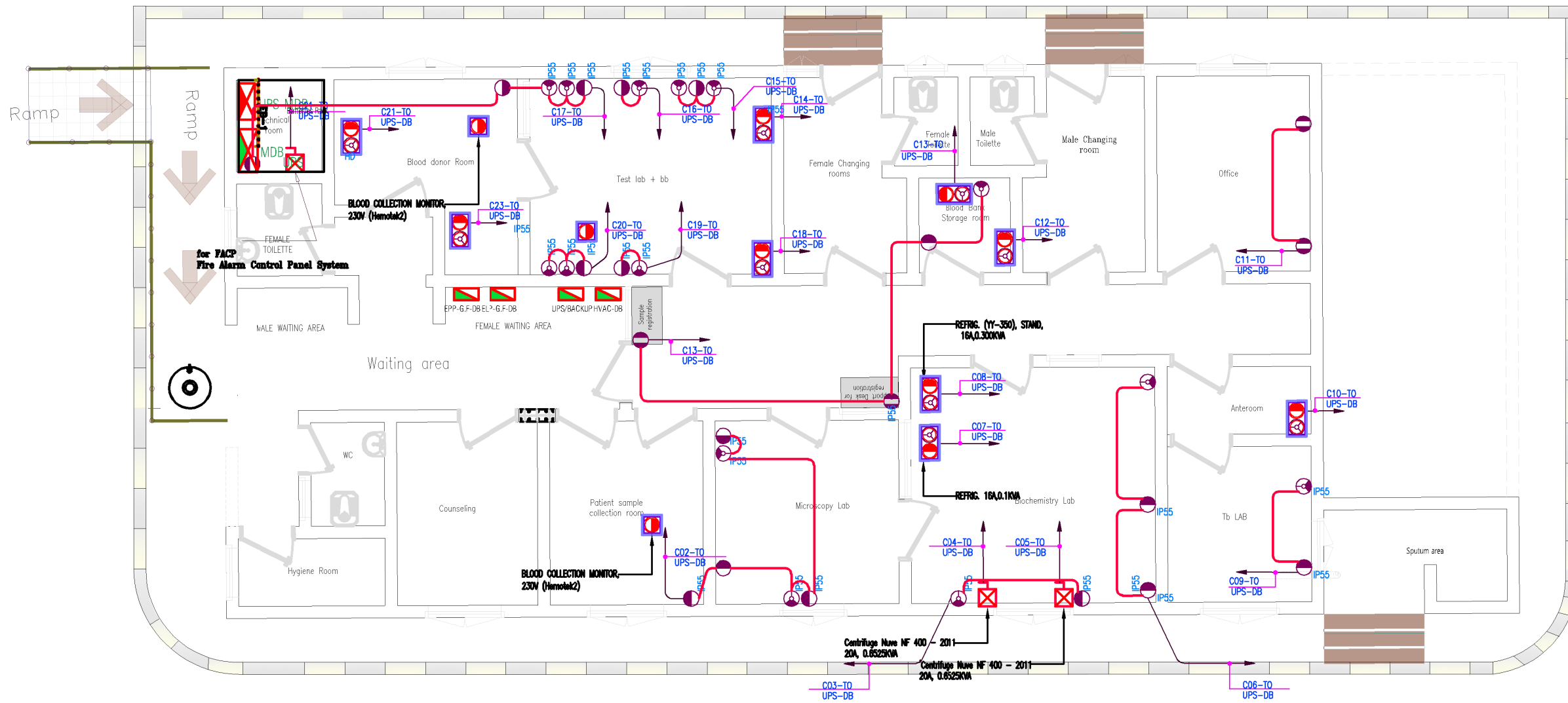
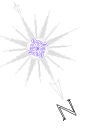
Paper Size:

DATE:

July ,2025

DWG.NO:

ELE-011



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

**Laboratory Ground FLOOR
UPS Backup Power System Layout.**

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

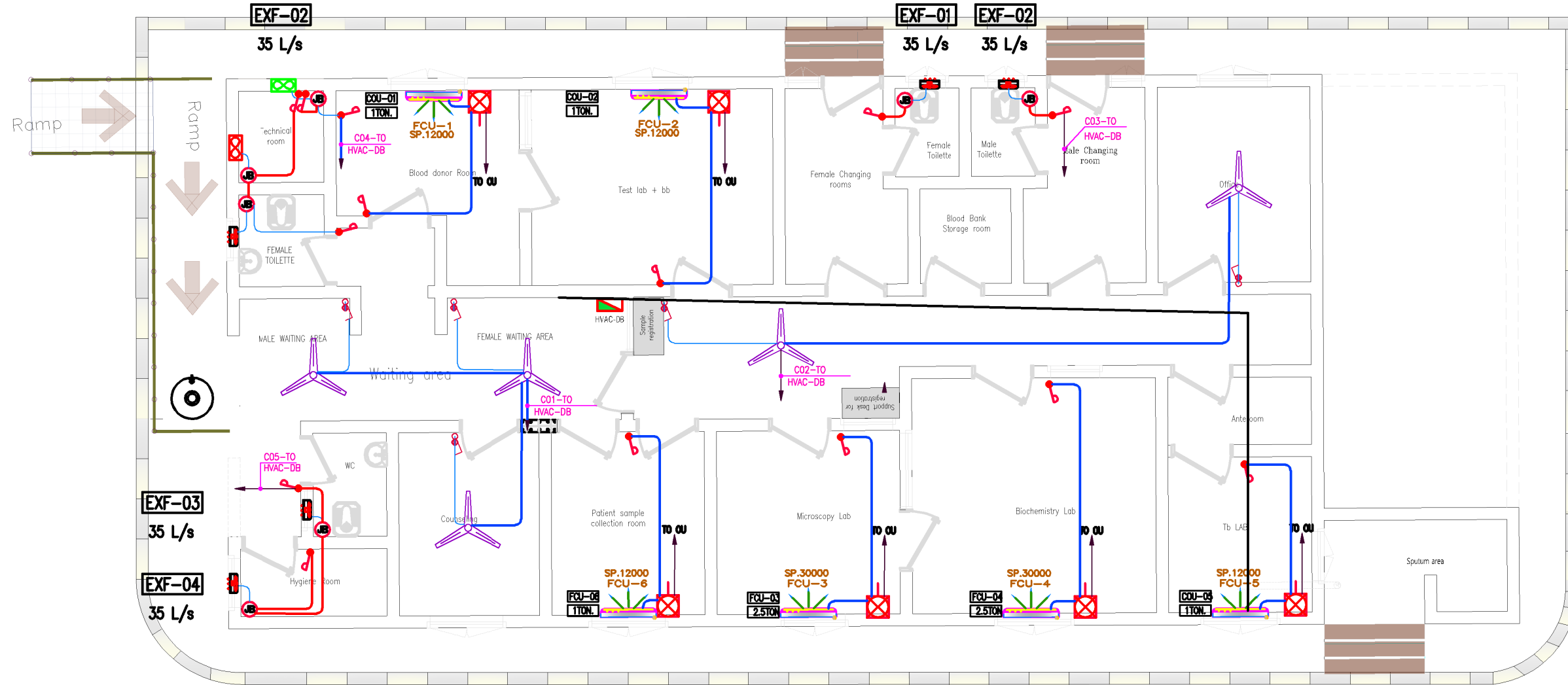
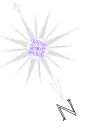
Paper Size:

DATE:

July ,2025

DWG.NO:

ELE-012



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

DRAWING TITLE:

Laboratory Ground Floor Power System for HVAC System Layout.

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DWG.NO:

ELE-013

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING Type:

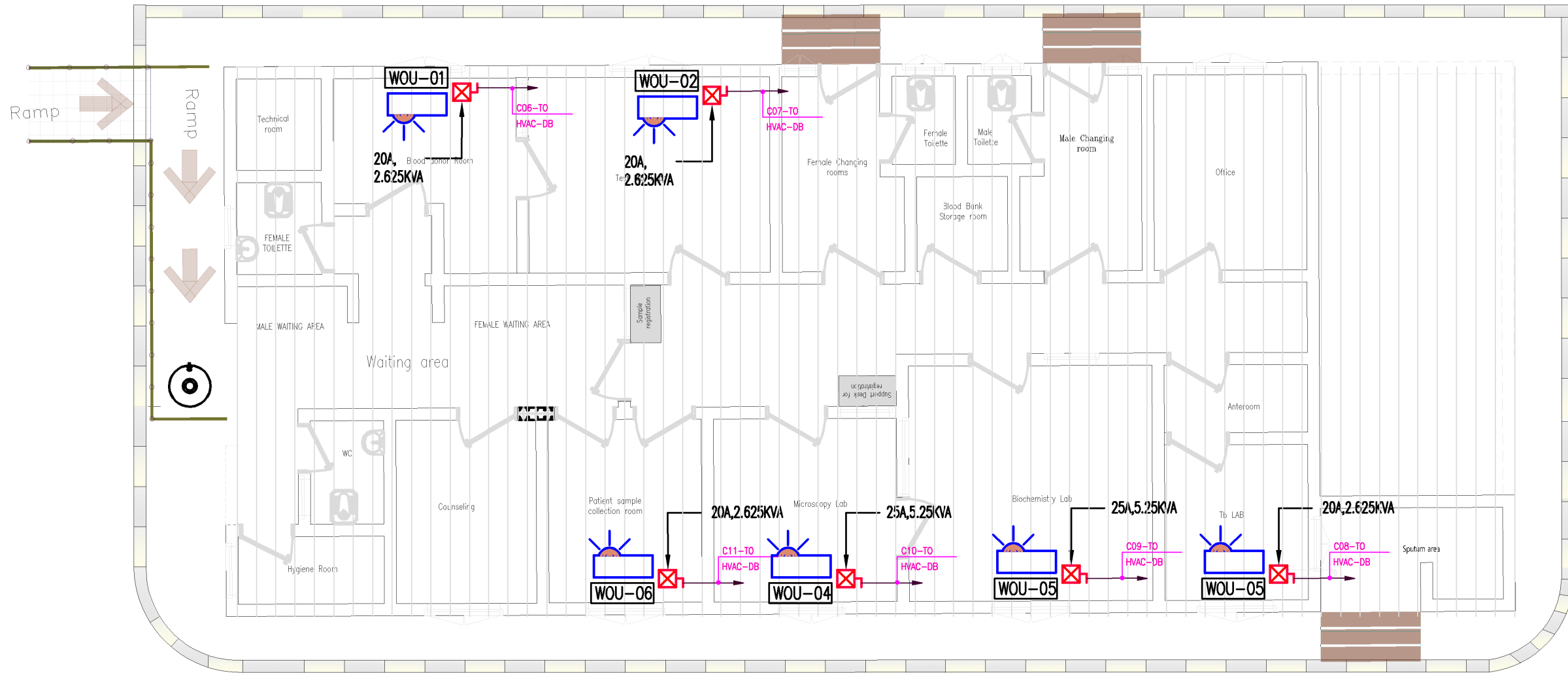
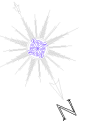
ELECTRICAL

DESIGNED BY :

MSF

DATE:

July ,2025



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

**Laboratory Roof Floor
Power System for HVAC System**

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

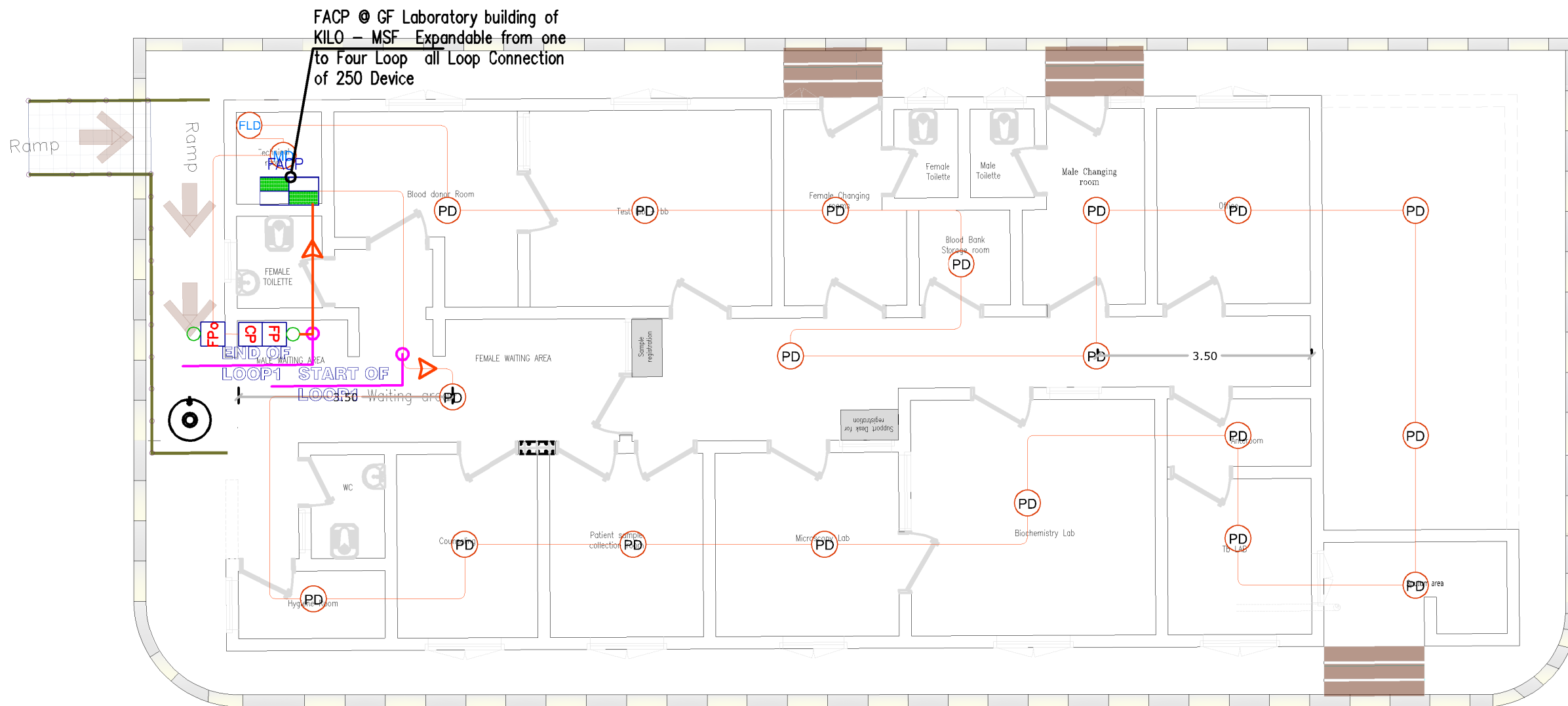
Paper Size:

DATE:

July ,2025

DWG.NO:

ELE-014



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

**Laboratory Ground FLOOR
Fire Detection & Fire Alarm System**

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

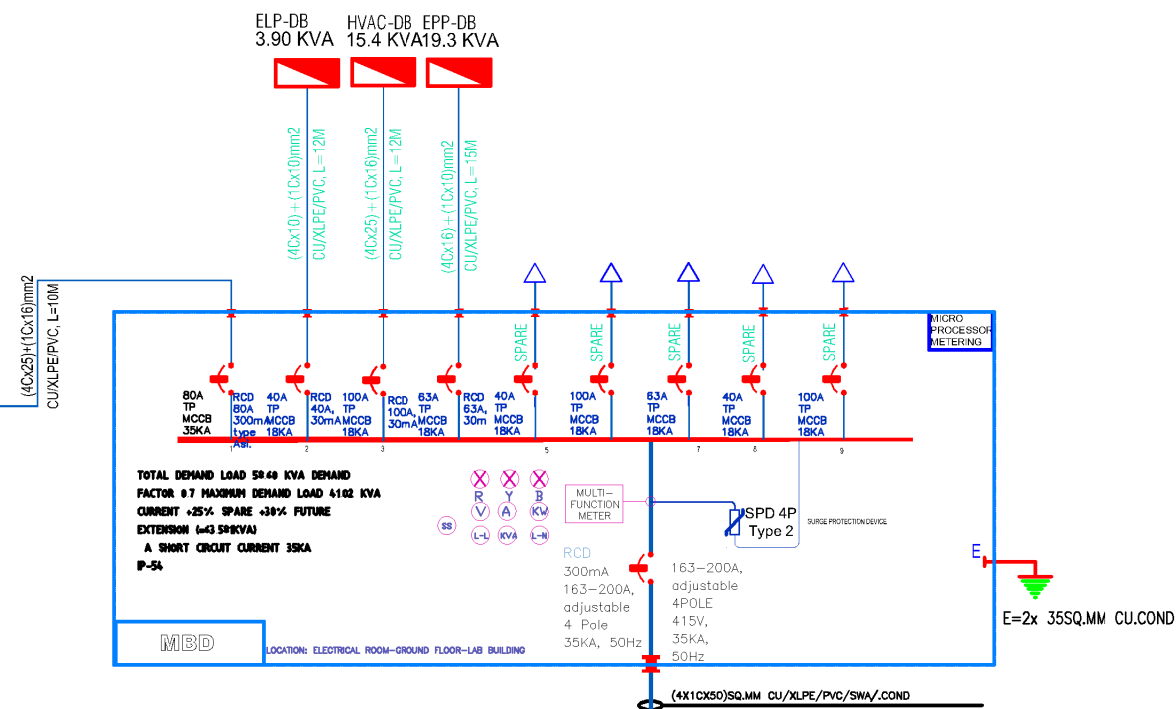
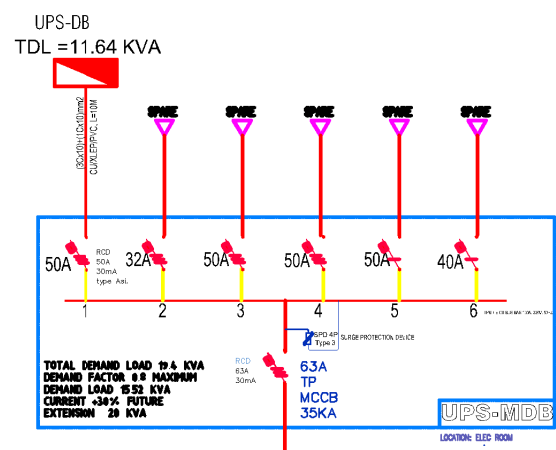
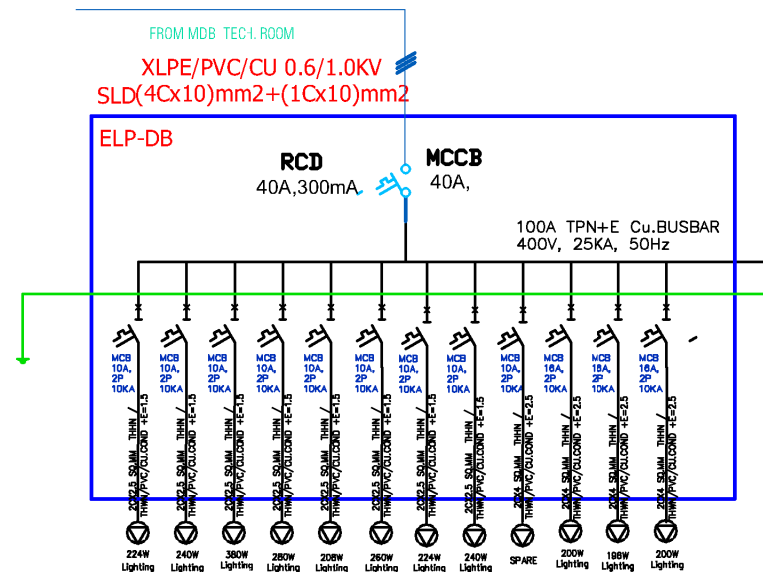
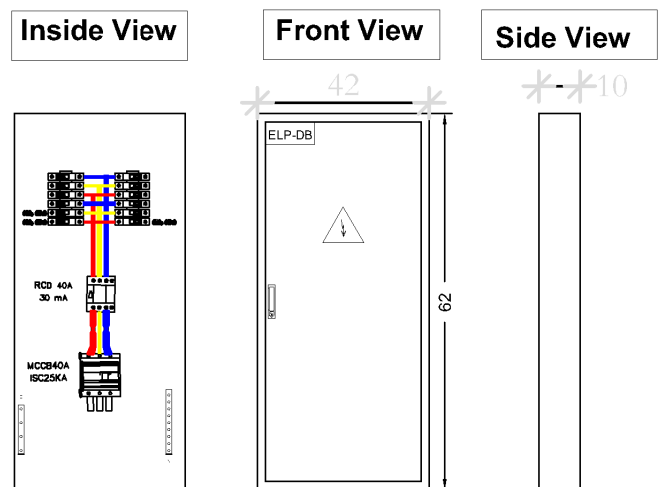
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July ,2025

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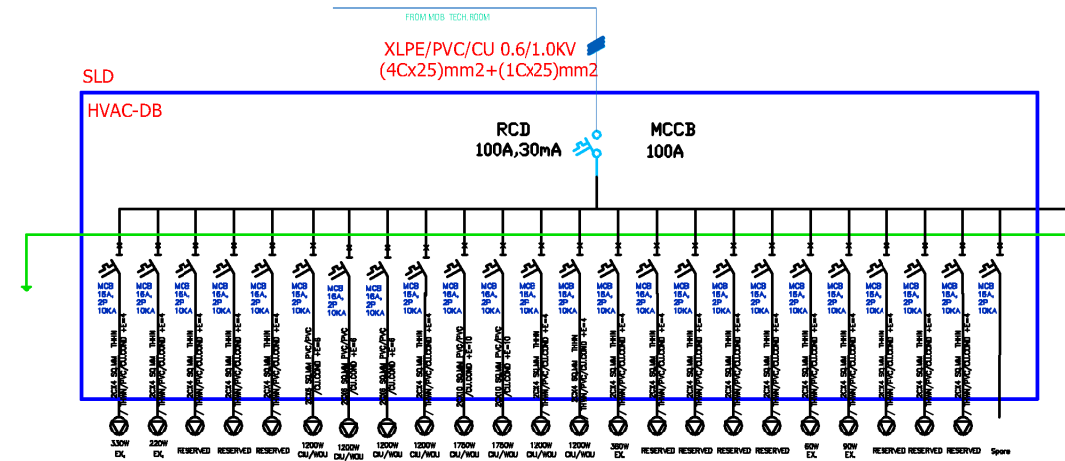
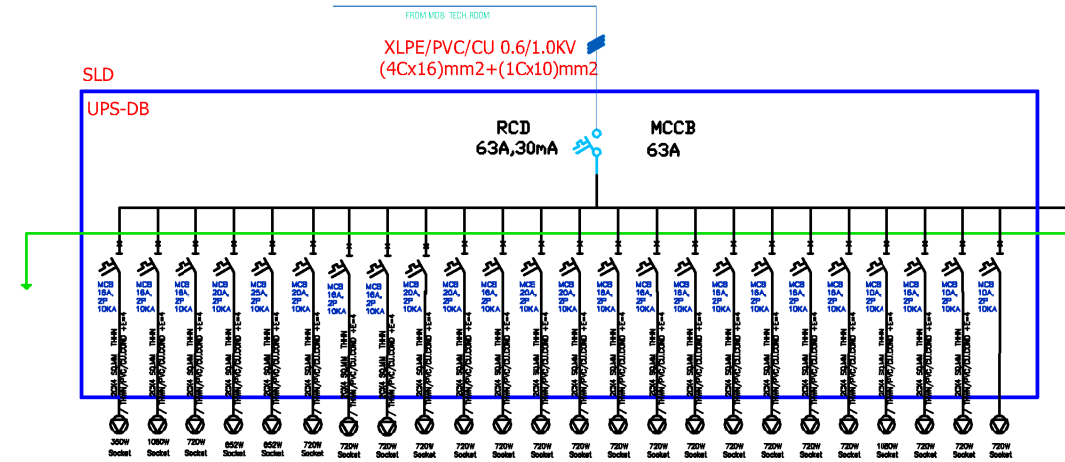
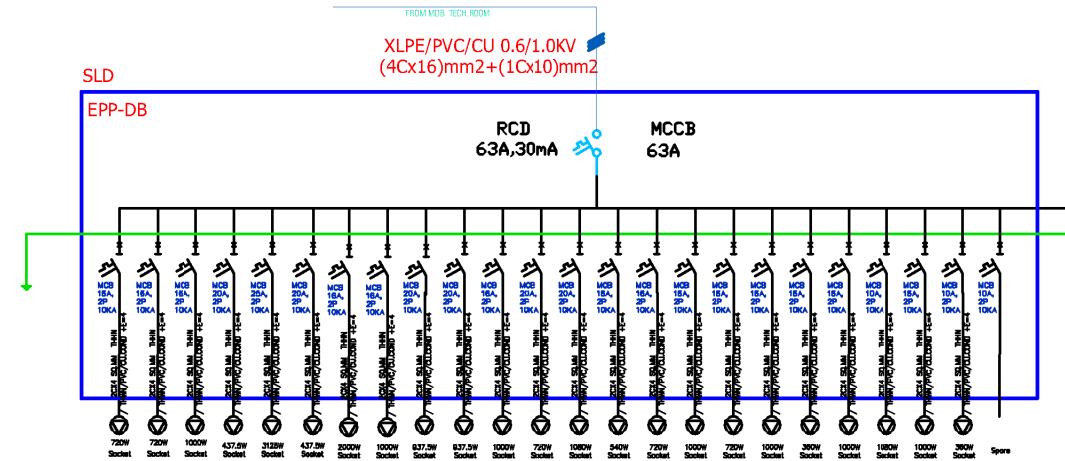
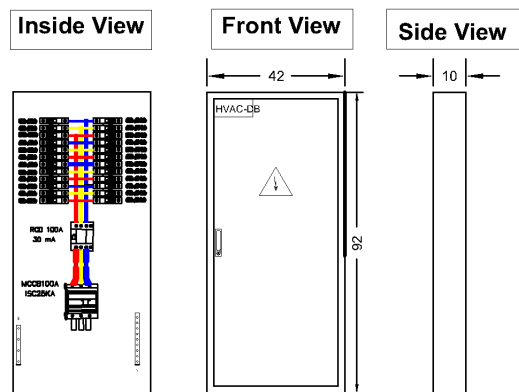
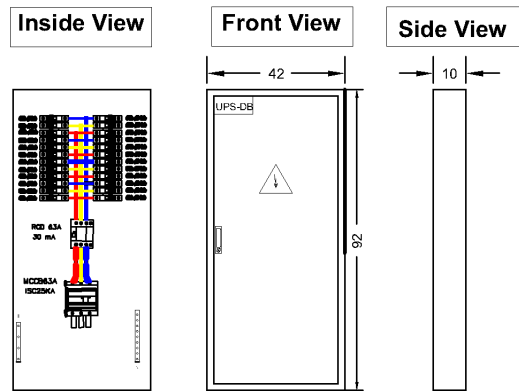
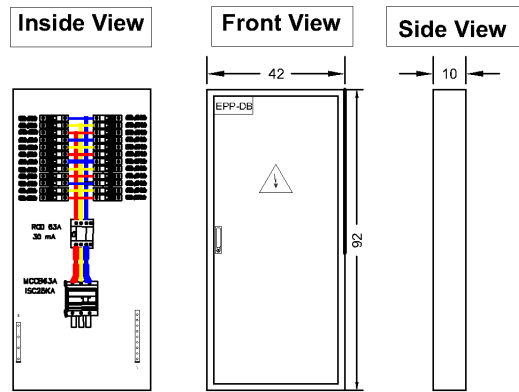
ELE-015



GROUND FLOOR

FEEDED FROM EL. ROOM

<p>Funded by:</p> <p>OPERATING CENTER GENEVA CENTRE OPERATIONNEL De GENÈVE</p>	<p>PROJECT Title:</p> <p>Construction a new Laboratory for KILO Hospital</p>	<p>DRAWING TITLE:</p> <p>Single Line Diagram distribution system Layout.</p>	<p>Drawing Status:</p> <p>Design Drawing</p>	<p>SCALE: As Shown</p> <p>Paper Size:</p>	<p>DWG.NO:</p> <p>ELE-016</p>
	<p>PROJECT Location:</p> <p>KILO General Hospital - KILO District Ibb Government / Yemen</p>	<p>DRAWING Type:</p> <p>ELECTRICAL</p>	<p>DESIGNED BY :</p> <p>MSF</p>	<p>DATE:</p> <p>July ,2025</p>	



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

Single Line Diagram For
Final distribution Panel Layout.

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

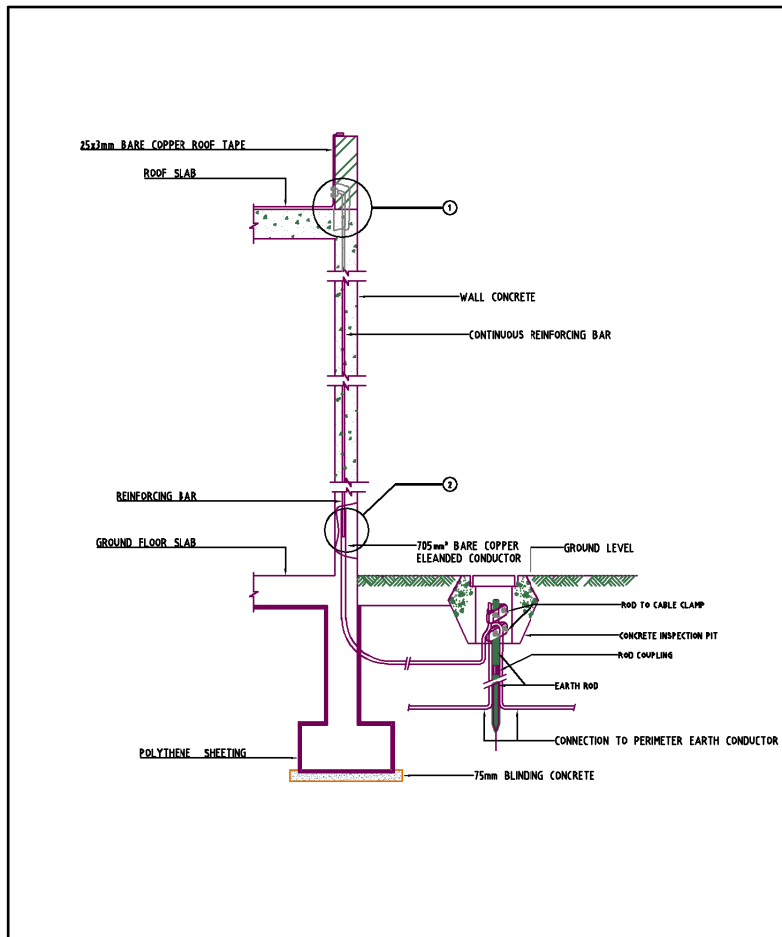
July ,2025

DWG.NO:

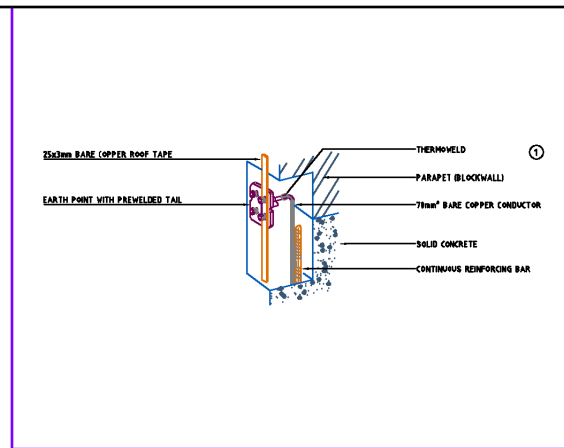
ELE-017

ABBREVIATIONS (1)

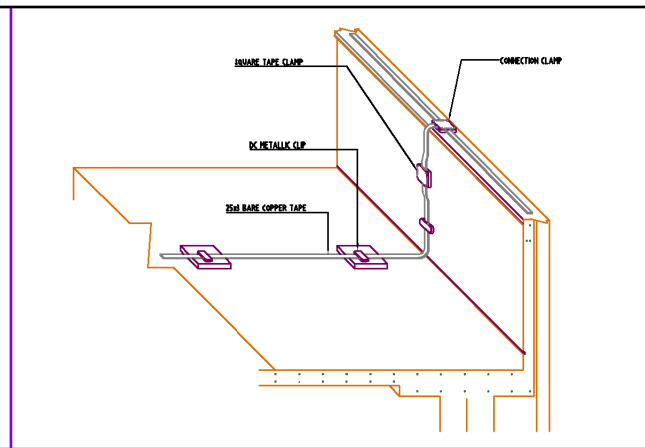
A	AMPERE
ACB	AIR CIRCUIT BREAKER
AHU	AIR HANDLING UNIT
ATS	AUTOMATIC TRANSFER SWITCH
C.O.E.L.C.B.	CURRENT OPERATED EARTH LEAKAGE CIRCUIT BREAKER
DB	DIELEIBUTION BOARD
DP	DOUBLE POLE
EXF	EXTRACT (EXHAUST) FAN
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
F.O.C.	FIBER OPTIC CABLE
H.V.	HIGH VOLTAGE
JB	JUNCTION BOX
KA	KILO AMPERE
KV	KILO VOLT
KVA	KILO VOLT-AMPERE
KW	KILO WATT
KWHM	KILO WATT HOUR METER
MCB	MINIATURE CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MDB	MAIN DIELEIBUTION BOARD
MDF	MAIN DIELEIBUTION FRAME
MPCB	MOTOR PROTECTION CIRCUIT BREAKER
MSP	MECHANICAL SWITCHING PANEL
N.T.S.	NOT TO SCALE
O.L.	OVER LOAD
P	PAIR
PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE
SMDB	SUB MAIN DIELEIBUTION BOARD
SPN	SINGLE PHASE & NEUTRAL
TEL.	TELEPHONE
TPN	THREE PHASE & NEUTRAL
UPS	UNINTERRUPTABLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR CABLE
TPN+E	THREE PHASE, NEUTRAL
TP	THREE POLE
SP	SINGLE POLE
S.C	SHORT CIRCUIT PROTECTION
E.F	EARTH FAULT PROTECTION
RMU	RING MAIN UNIT
B.C	BREAKING CAPACITY
MSB	MAIN SWITCH BOARD
EDC	EMERGENCY DIELEIBUTION CABINET
MV	MEDIUM VOLTAGE
LV	LOW VOLTAGE
SPL	SOUND PRESSURE LEVEL
U	WIRING ACCESSORY, OUTLET, DEVICE OR FIXTURE IS FED FROM A UPS (UNINTERRUPTED POWER SUPPLY).



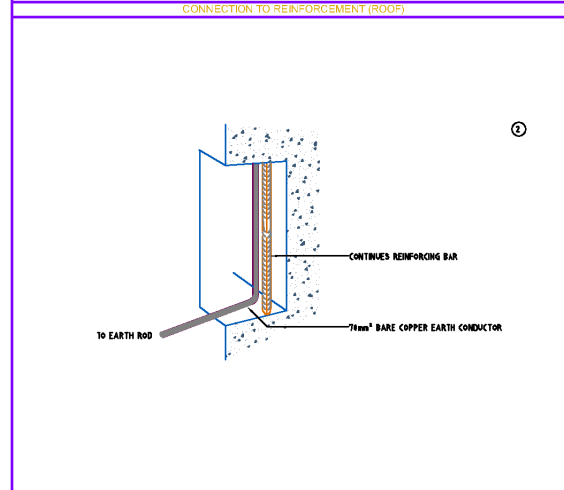
TYPICAL DOWN CONDUCTOR ARRANGEMENTS



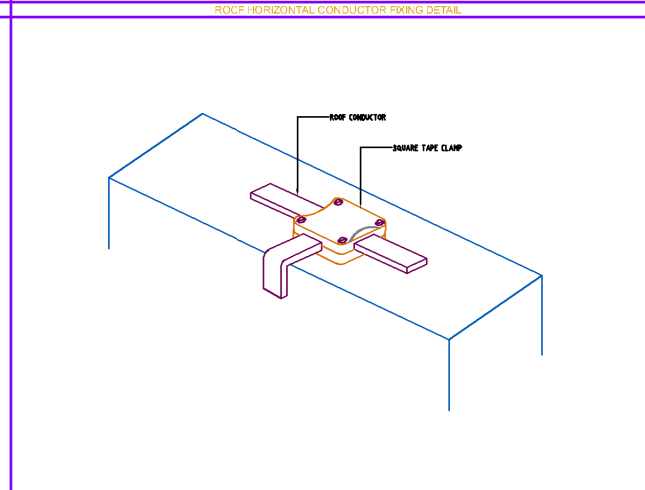
CONNECTION TO REINFORCEMENT (ROOF)



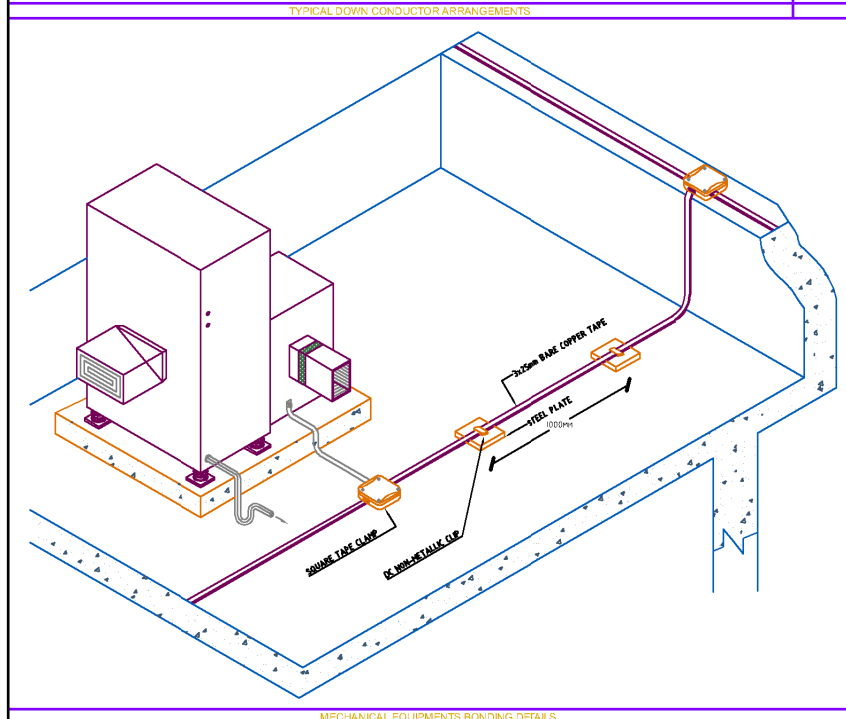
ROOF HORIZONTAL CONDUCTOR FIXING DETAIL



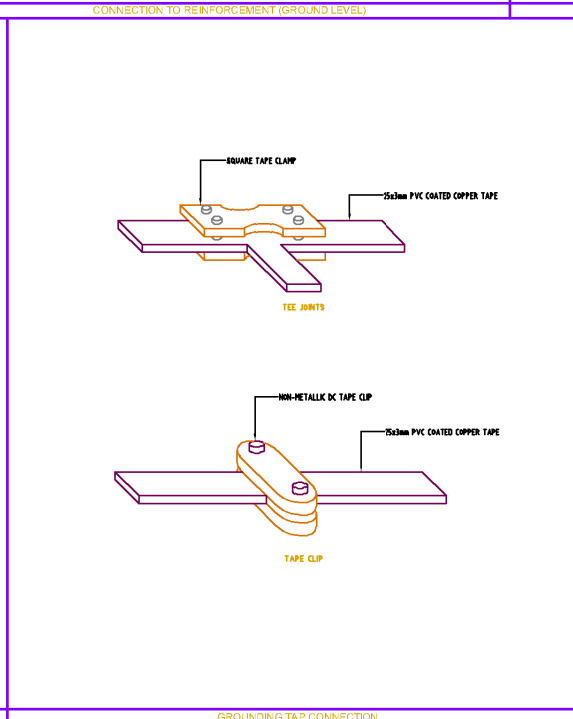
CONNECTION TO REINFORCEMENT (GROUND LEVEL)



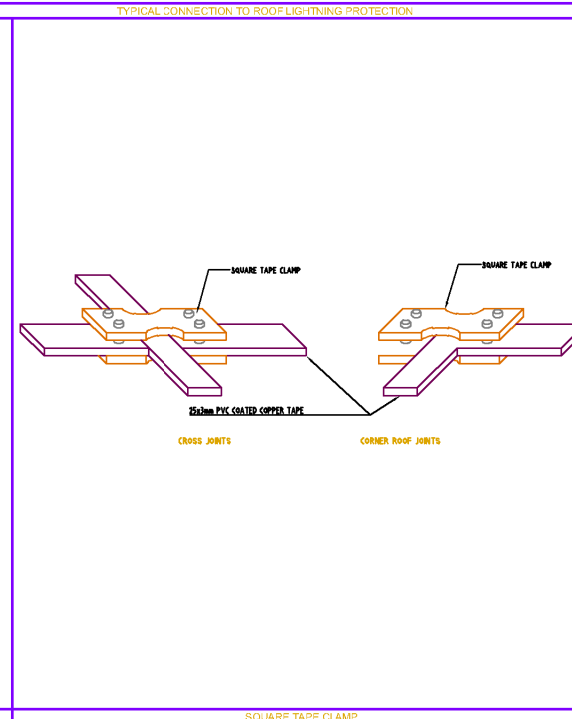
TYPICAL CONNECTION TO ROOF LIGHTNING PROTECTION



MECHANICAL EQUIPMENTS BONDING DETAILS



GROUNDING TAP CONNECTION



SQUARE TAPE CLAMP

Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

Electrical Details 1

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

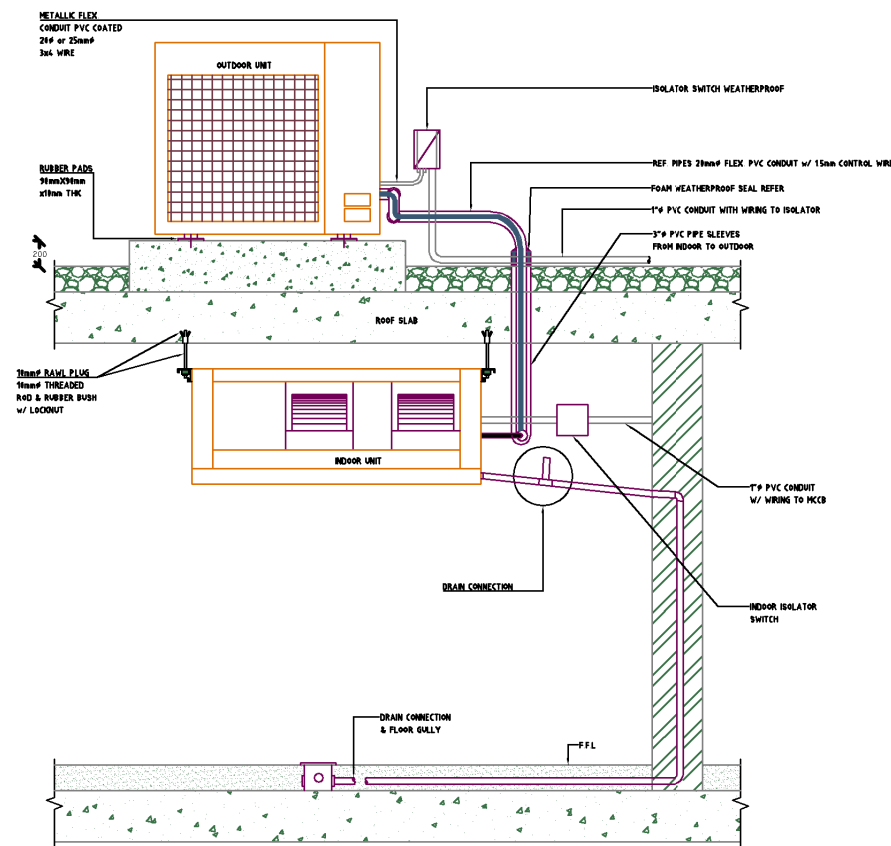
July ,2025

DWG.NO:

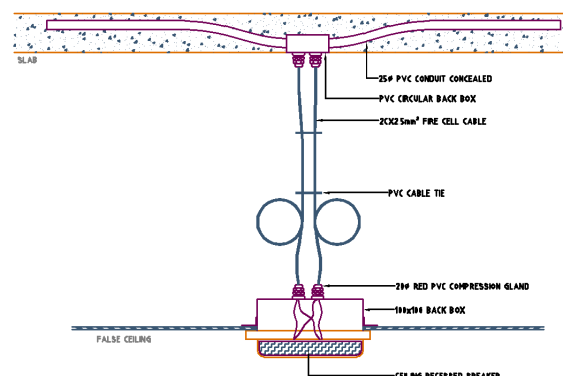
ELE-018

ABBREVIATIONS (2)

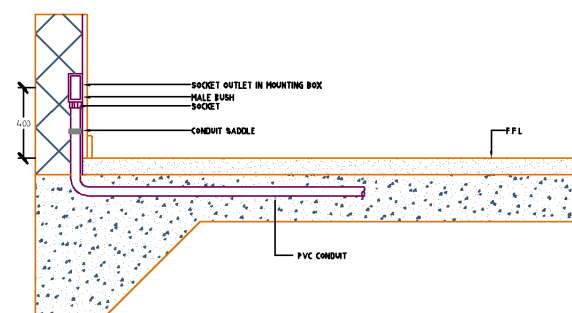
TTC	TELEPHONE TERMINAL BOX
UTP	UNSHIELDED TWISTED PAIR CABLE
V	VOLT
VA	VOLT-AMPERE
W	WATT
EWB	ELECTRICAL WATER HEATER
WP	WEATHER PROOF
AFC	ABOVE FALSE CEILING
UF	UNDER FLOOR
EMDB	EMERGENCY MAIN DIELEIBUTION BOARD
G	GENERATOR
T	TRANSFORMER
E	EARTH
IP	INGRESS PROTECTION
B	BELL
S	ANALOGUE ADDRESSABLE SMOKE DETECTOR
H	ANALOGUE ADDRESSABLE HEAT DETECTOR
C	ANALOGUE ADDRESSABLE COMBINED (HEAT/SMOKE) DETECTOR
EOR	END OF LINE RESISTANCE
IF	INFRARED
UV	ULTRA VIOLET
TTA	TYPE TESTED ASSEMBLY
MD	MOTION DETECTOR
TEL	TELEPHONE
CR	CARD READER
ML	MAGNETIC LOOK
CCTV	CLOSED CIRCUIT TELEVISION
DC	DATA CABINET
IM	INPUT MODULE
I/O	INPUT/OUTPUT MODULE
IFM	INTERFACE MODULE
BMS	BUILDING MANAGEMENT SYSTEM
FL	FLOOR
S/ST	SUB-STATION
BC	BUS COUPLER
BB	BUSBAR
A/C	WINDOW AIR CONDITION UNIT
ARM	ARMOURED
CP	CONTROL PANEL
C/U	CONDENSING UNIT
D.F.	DIVERSITY FACTOR
DI	DIAMETER
D.S.	DISCONNECTING SWITCH
E.C.C.	EARTH CONTINUITY CONDUCTOR
EWB	ELECTRICAL WATER COOLER
FA	FIRE ALARM
VFD	VARIABLE FREQUENCY DRIVE
EX	EXPLOSION PROOF
HTSG	HIGH TENSION SWITCHGEAR PANEL



AC INDOOR / OUTDOOR INSTALLATION



INSTALLATION DETAILS OF RECESSED SPEAKER



DATA OUTLET INSTALLATION

Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:

Electrical Details 2

DRAWING Type:

ELECTRICAL

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

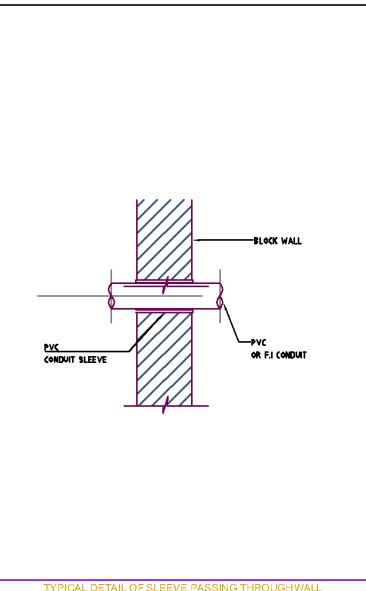
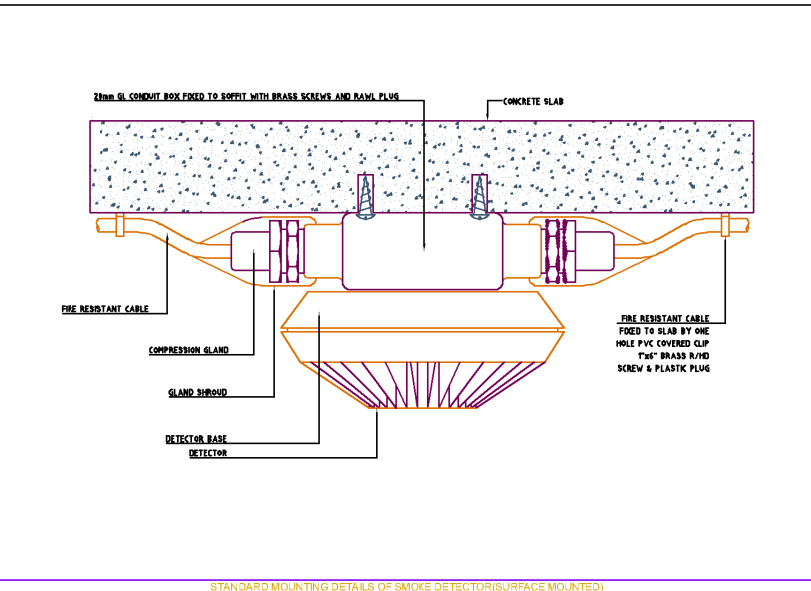
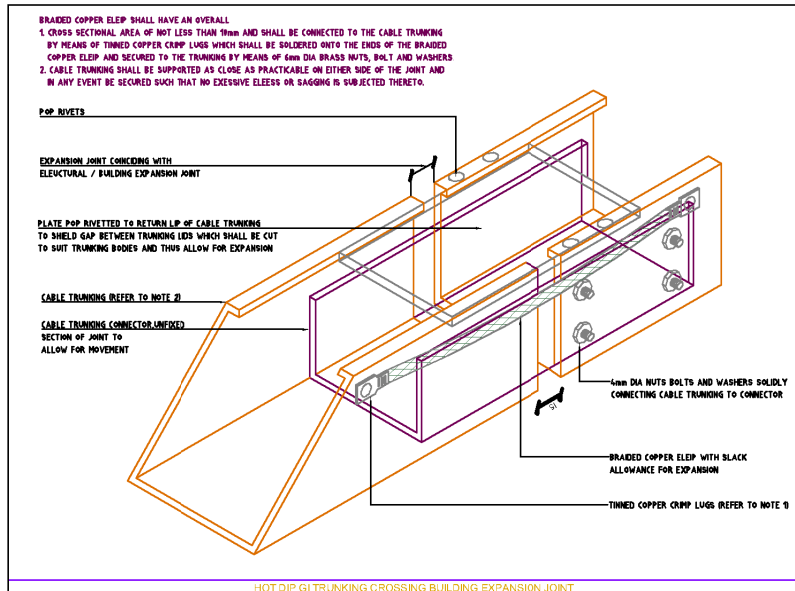
July ,2025

DWG.NO:

ELE-019

ABBREVIATIONS (1)

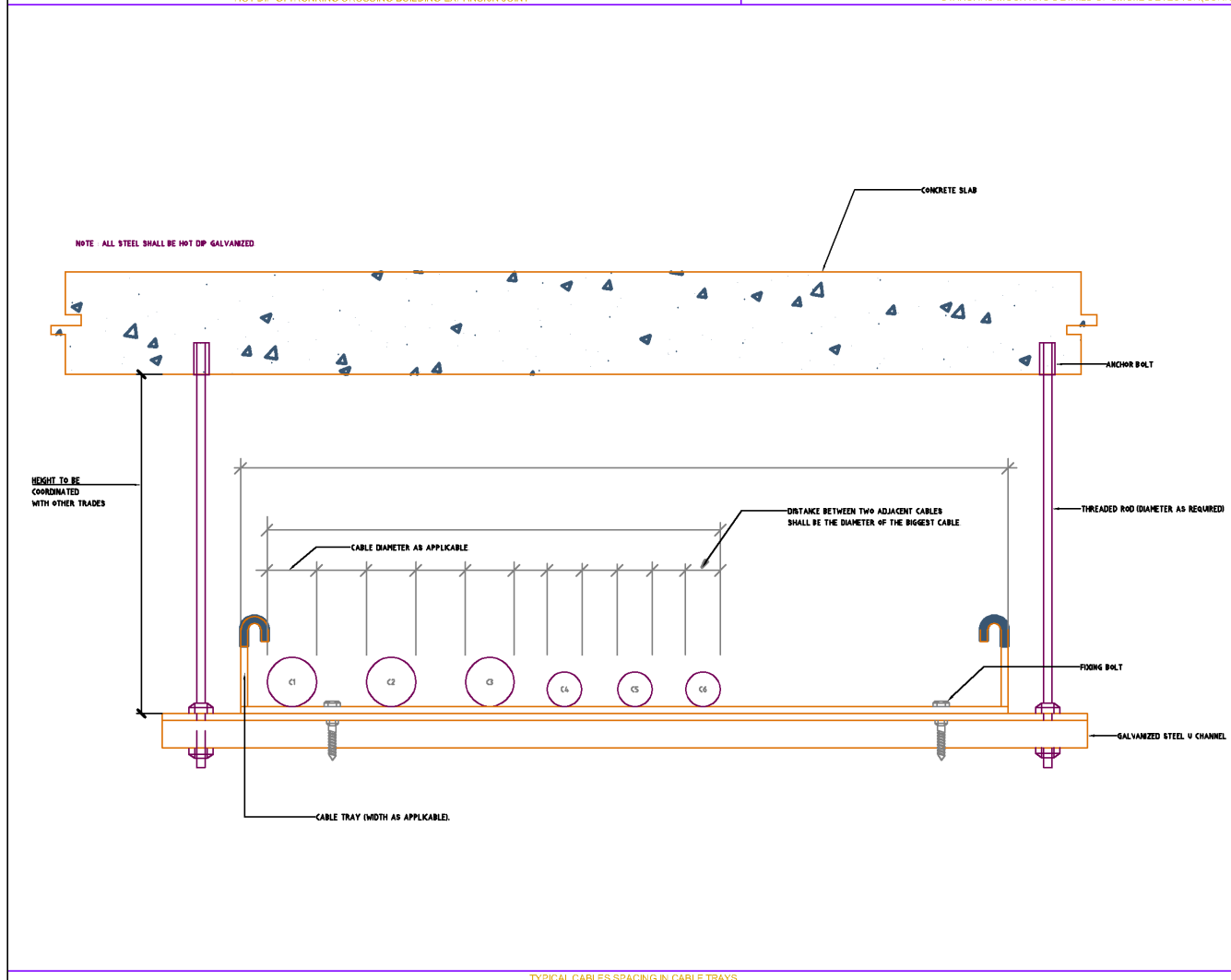
A	AMPERE
ACB	AIR CIRCUIT BREAKER
AHU	AIR HANDLING UNIT
ATS	AUTOMATIC TRANSFER SWITCH
C.O.E.L.C.B.	CURRENT OPERATED EARTH LEAKAGE CIRCUIT BREAKER
DB	DIELEIBUTION BOARD
DP	DOUBLE POLE
EXF	EXTRACT (EXHAUST) FAN
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
F.O.C.	FIBER OPTIC CABLE
H.V.	HIGH VOLTAGE
JB	JUNCTION BOX
KA	KILO AMPERE
KV	KILO VOLT
KVA	KILO VOLT-AMPERE
KW	KILO WATT
KWHM	KILO WATT HOUR METER
MCB	MINIATURE CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MDB	MAIN DIELEIBUTION BOARD
MDF	MAIN DIELEIBUTION FRAME
MPCB	MOTOR PROTECTION CIRCUIT BREAKER
MSP	MECHANICAL SWITCHING PANEL
N.T.S.	NOT TO SCALE
O.L.	OVER LOAD
P	PAIR
PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE
SMDB	SUB MAIN DIELEIBUTION BOARD
SPN	SINGLE PHASE & NEUTRAL
TEL.	TELEPHONE
TPN	THREE PHASE & NEUTRAL
UPS	UNINTERRUPTABLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR CABLE
TPN+E	THREE PHASE, NEUTRAL
TP	THREE POLE
SP	SINGLE POLE
S.C	SHORT CIRCUIT PROTECTION
E.F	EARTH FAULT PROTECTION
RMU	RING MAIN UNIT
B.C	BREAKING CAPACITY
MSB	MAIN SWITCH BOARD
EDC	EMERGENCY DIELEIBUTION CABINET
MV	MEDIUM VOLTAGE
LV	LOW VOLTAGE
SPL	SOUND PRESSURE LEVEL
U	WIRING ACCESSORY, OUTLET, DEVICE OR FIXTURE IS FED FROM A UPS (UNINTERRUPTED POWER SUPPLY).



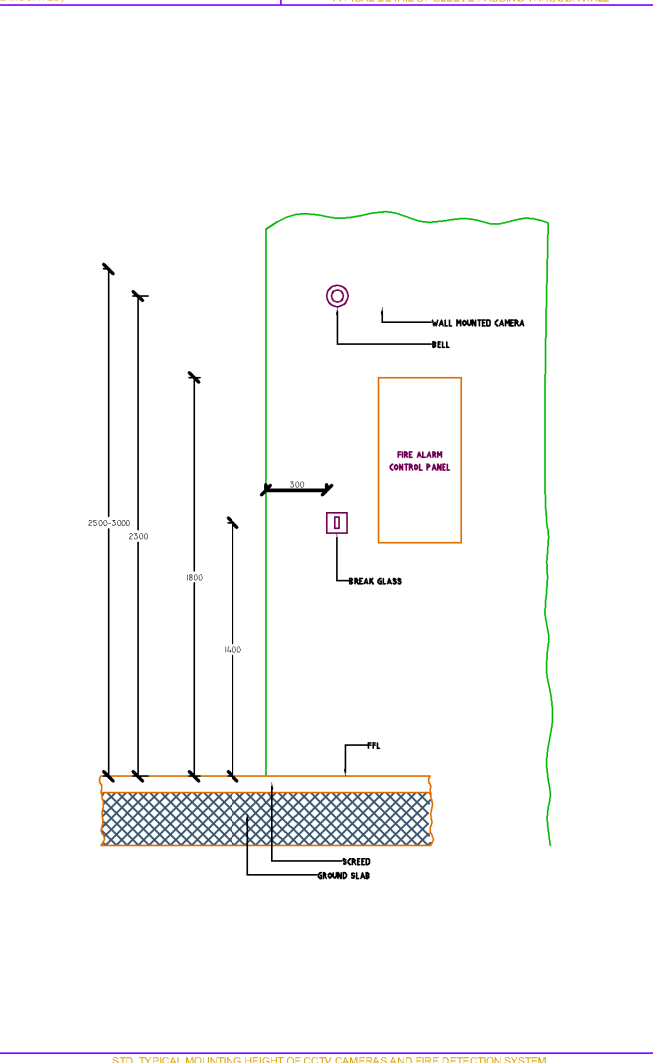
HOT DIP GI TRAYING CROSSING BUILDING EXPANSION JOINT

STANDARD MOUNTING DETAILS OF SMOKE DETECTOR(SURFACE MOUNTED)

TYPICAL DETAIL OF SLEEVE PASSING THROUGH WALL



TYPICAL CABLES SPACING IN CABLE TRAYS



STD. TYPICAL MOUNTING HEIGHT OF CCTV CAMERAS AND FIRE DETECTION SYSTEM

Funded by:

MEDECINS SANS FRONTIERES

OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:
Electrical Details 3

DRAWING Type:
ELECTRICAL

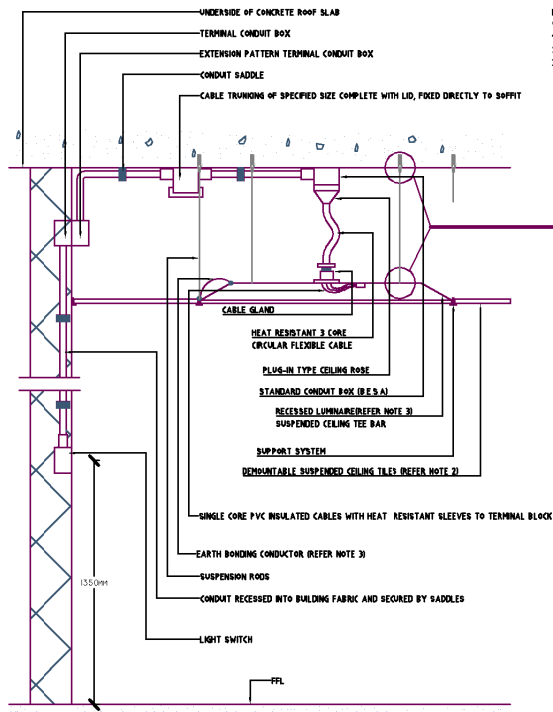
Drawing Status:
Design Drawing

DESIGNED BY :
MSF

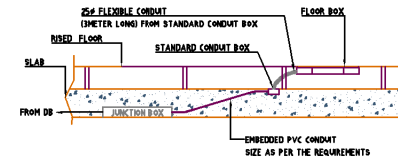
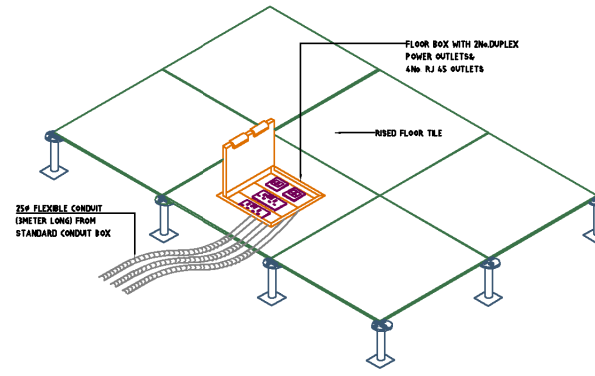
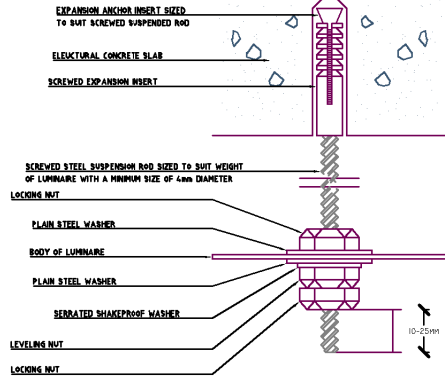
SCALE: As Shown
Paper Size:

DATE:
July ,2025

DWG.NO:
ELE-020



NOTES:
 1. SUSPENSION HANGERS ASSOCIATED WITH SUSPENDED CEILING SUPPORT SYSTEM HAVE BEEN OMITTED FOR CLARITY. A MINIMUM OF 4 NO SCREWED SUSPENSION RODS SHALL BE PROVIDED FOR EACH LUMINAIRE UNLESS OTHERWISE INDICATED.
 2. A 25mm² EARTH BONDING CONDUCTOR SHALL BE FIXED ALONG EACH LUMINAIRE BODY TO ADJACENT SUSPENDED CEILING TEE BAR SUPPORT SYSTEM



FLOOR MOUNTED TRUNKING & FLOOR BOX INSTALLATION DETAIL

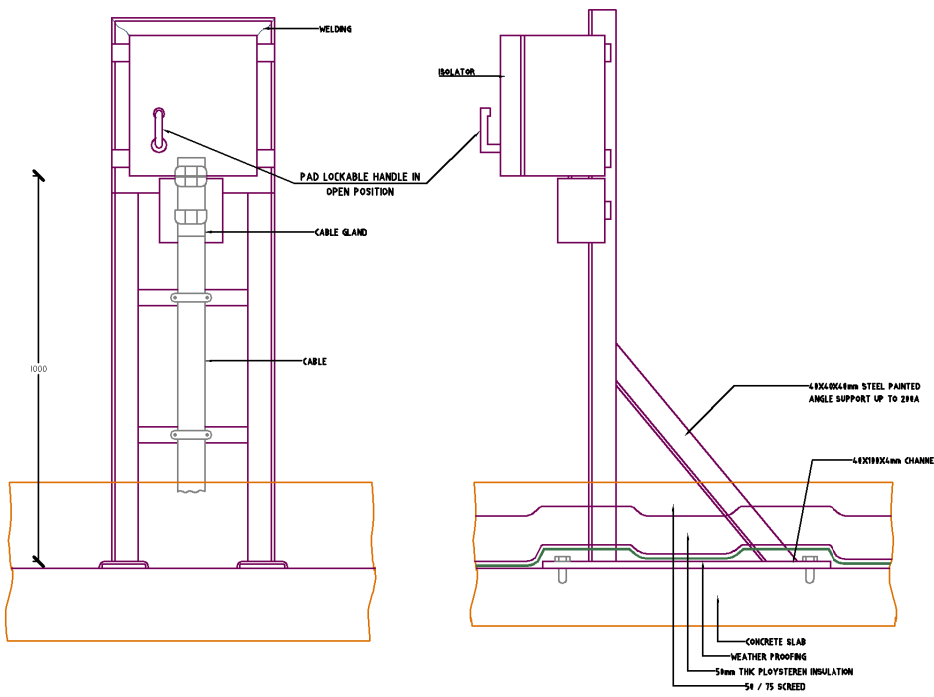
MOUNTING HEIGHT OF DEVICES AND EQUIPMENT	
UNLESS OTHERWISE INDICATED, DEVICES AND EQUIPMENT SHALL BE INSTALLED AT THE FOLLOWING HEIGHTS, MEASURED IN CMS. FROM F.F.L., TO THE CENTER LINE OF DEVICE OR EQUIPMENT. ITEMS MARKED THUS (*) SHALL BE REFERRED TO GENERAL NOTES 2.1 TO 2.12 & 3.1-3.5 FOR ADDITIONAL REMARKS:	
LIGHTING POINT ABOVE MIRROR IN TOILB01-ET-MURAL	180 cms. OR AS PER I.D. REQUIREMENT
LIGHTING SWITCHES	125 cms.
FANS SWITCHES	125 cms.
13 AMPERE SOCKET OUTLET	45 cms.
F.C.U SOCKET OUTLET	Ceiling
20 AMPERE DP SWITCH FOR AC UNIT	Adjacent to A/C
20 AMPERE DP SWITCH FOR WATER HEATER	125 cms.
13 AMPERE SO IN KITCHEN ABOVE WORK TOP	25cm above worktop
ROOM THERMOSTATS	160 cms.
FIRE ALARM BREAK GLASS	125 cms.
FIRE ALARM BELL	220 cms.
TELEPHONE/TV CONNECTION BOX	100 cms.
DATA/SOUND CONNECTION BOX	100 cms.
TELEPHONE SOCKET OUTLETS	45 cms.
DATA SOCKET OUTLETS	45 cms.
TV SOCKET OUTLETS	120 cms.
POWER SOCKET OUTLETS FOR TV	120 cms.
TOP OF DIELEIBUTION BOARD	180 cms.
TOP OF FIRE ALARM CONTROL PANEL	180 cms.
CONTACTOR CONTROL PUSHBUTTON	140 cms.
FLEX OUTLET	45 cms.
OUTLET BOX FOR CONTROL DEVICE	140 cms.

MINIMUM REQUIREMENT OF CONDUIT
 SIZES SHALL BE AS TABULATED BELOW:

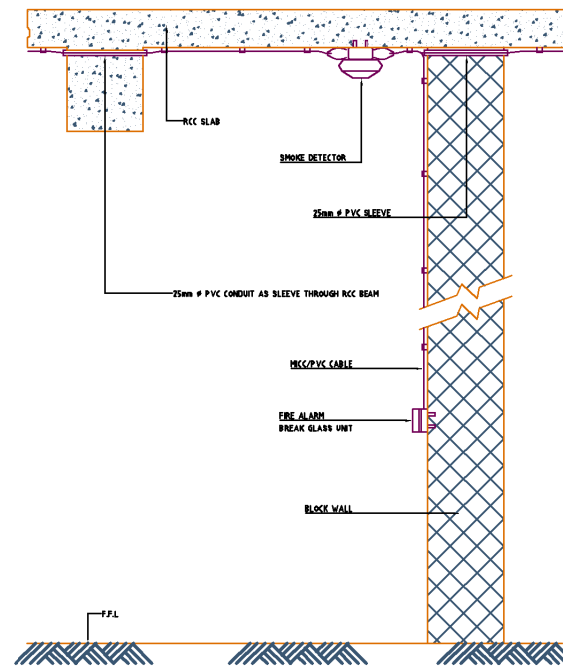
CABLE SIZE CONDUCTOR SIZE	CONDUIT SIZE			NO. & DIAMETER OF WIRES
	20mm	25mm	32mm	
1.5 mm ²	11	18	30	1/1.13
2.5 mm ²	8	14	23	1/1.78
2.5 mm ²	7	12	20	7/0.67
4.0 mm ²	5	9	15	7/0.85
6.0 mm ²	4	7	12	7/1.04
10.0 mm ²	3	4	7	7/1.35
16.0 mm ²	2	3	5	7/1.70
25.0 mm ²	-	2	4	7/2.14
35.0 mm ²	-	-	2	19/1.53
50.0 mm ²	-	-	2	19/1.78

MINIMUM CROSS-SECTIONAL AREA OF PROTECTIVE CONDUCTOR

CROSS-SECTIONAL AREA OF PHASE CONDUCTOR. (S) mm ²	MINIMUM CROSS-SECTIONAL AREA OF THE CORRESPONDING PROTECTIVE CONDUCTOR ECC OR (SP) mm ²
S ≤ 16	S
16 < S ≤ 35	16
S > 35	S/2



MOUNTING DETAIL OF PEDESTAL MOUNTED ISOLATOR



FIRE RESISTANT CABLE SYSTEM FIXED ON THE SOFFIT AND WALL

Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

DRAWING TITLE:

Electrical Details 4

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DWG.NO:

ELE-021

PROJECT Location:

KILO General Hospital - KILO District
 Ibb Government / Yemen

DRAWING Type:

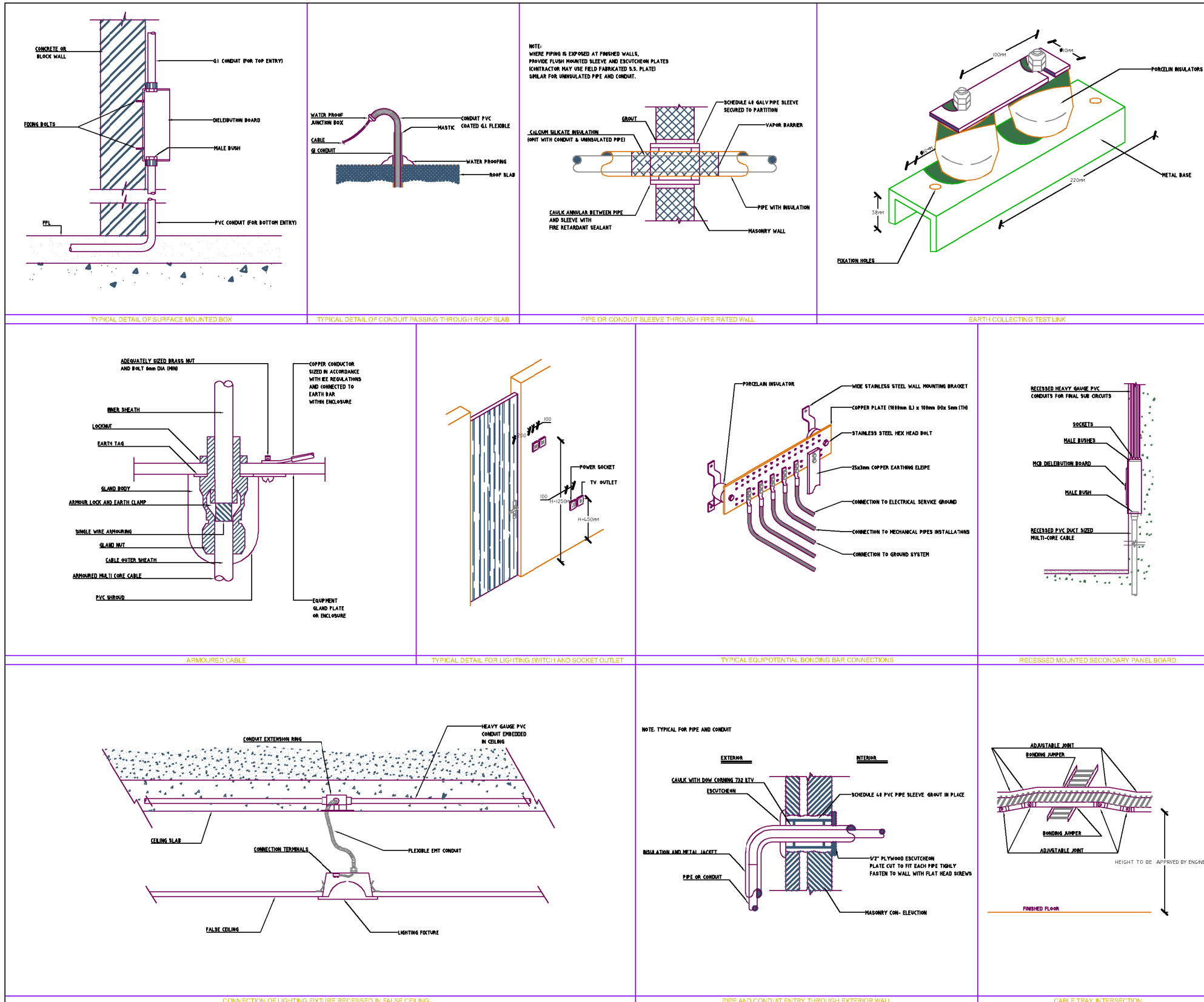
ELECTRICAL

DESIGNED BY :

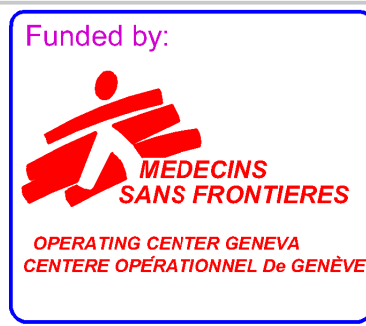
MSF

DATE:

July ,2025



STANDARD POWER LEGEND		
REF.	BLOCK	DESCRIPTION
PO-21		ELECTRICAL WATER HEATER
PO-22a		SINGLE PHASE MINIATURE CIRCUIT BREAKER (MCB).
PO-23b		THREE PHASE MINIATURE CIRCUIT BREAKER (MCB).
PO-24		SINGLE PHASE MOLDED CASE CIRCUIT BREAKER (MCCB).
PO-25		THREE PHASE MOLDED CASE CIRCUIT BREAKER (MCCB).
PO-26		PANEL BOARD
PO-27		MAIN DIELEIBUTION BOARD
PO-28		SUB MAIN DIELEIBUTION BOARD
PO-29		CONTACTOR
PO-30		TIMER
PO-31		SIGNAL LAMP.
PO-32		SELECTOR SWITCH
PO-33		AMMETER
PO-34		VOLTMETER
PO-35		POWER FACTOR METER
PO-36		DIESEL ENGINE STAND BY GENERATOR
PO-37		AUTOMATIC TRANSFER SWITCH
PO-38		TRANSFORMER
PO-39		KILO WATT HOUR METER
PO40		CONCRETE EARTHING MANHOLE WITH EARTH ROD



Funded by:
PROJECT Title:
 Construction a new Laboratory for KILO Hospital

PROJECT Location:
 KILO General Hospital - KILO District
 Ibb Government / Yemen

DRAWING TITLE:
 Electrical Details 5

DRAWING Type:
 ELECTRICAL

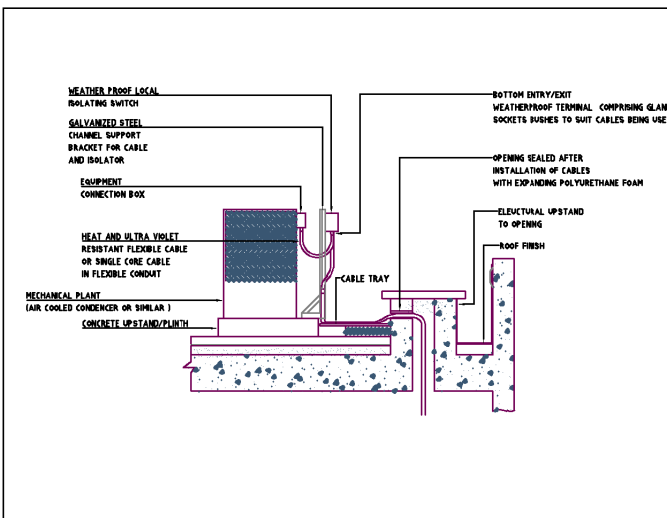
Drawing Status:
 Design Drawing

DESIGNED BY :
 MSF

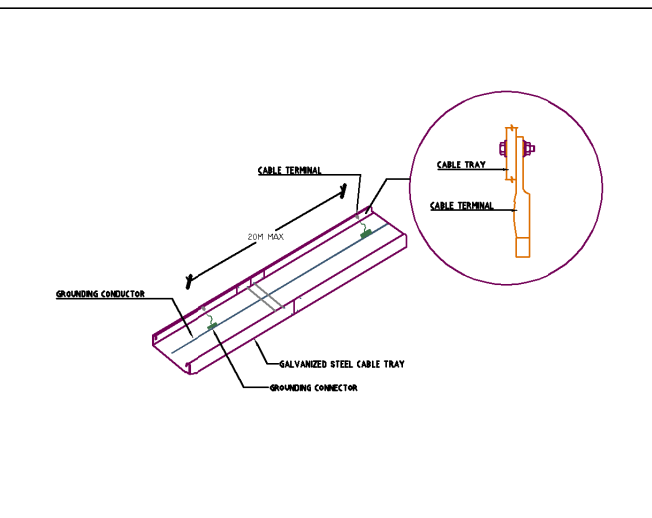
SCALE: As Shown
Paper Size:

DATE:
 July ,2025

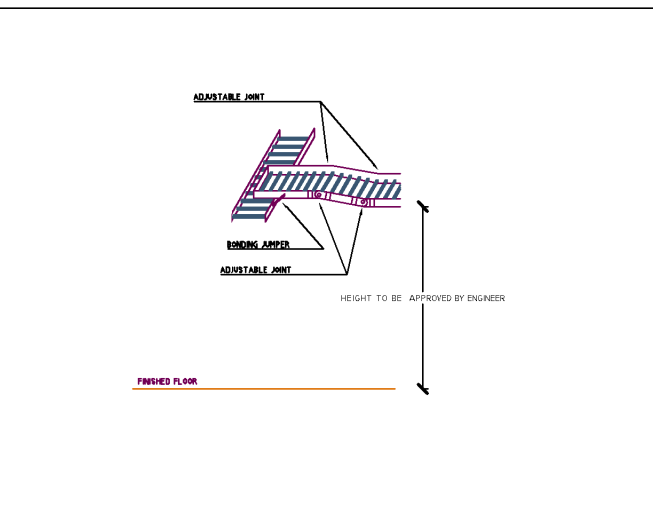
DWG.NO:
 ELE-022



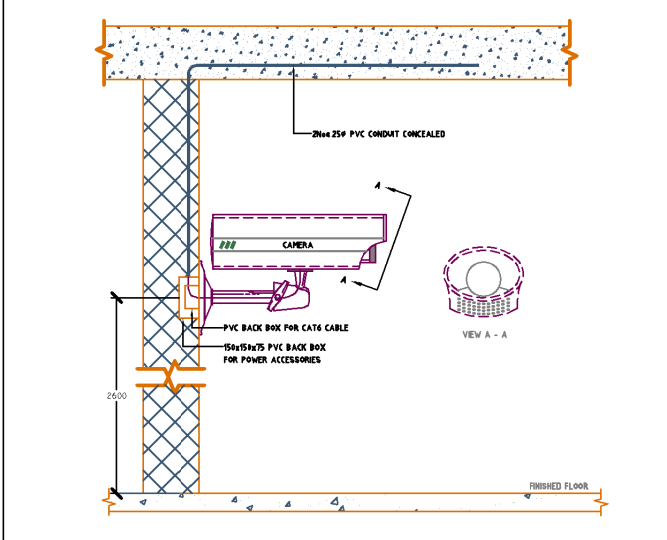
ELECTRICAL SUPPLIES TO ROOF MOUNTED EQUIPMENT



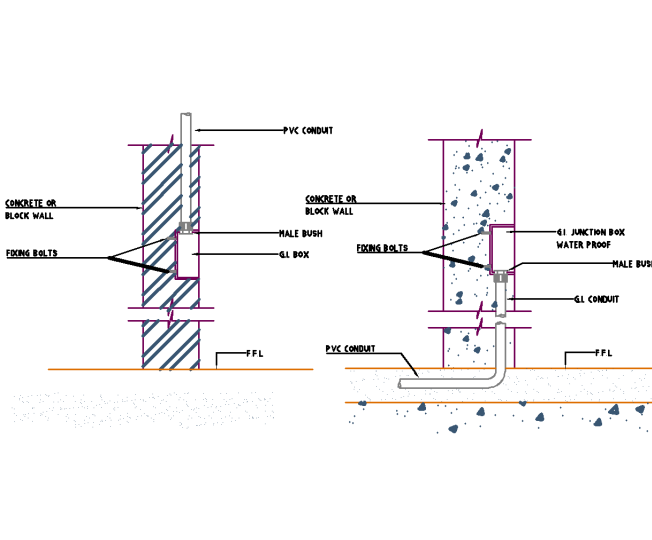
GROUNDING CONNECTION OF CABLE TRAY



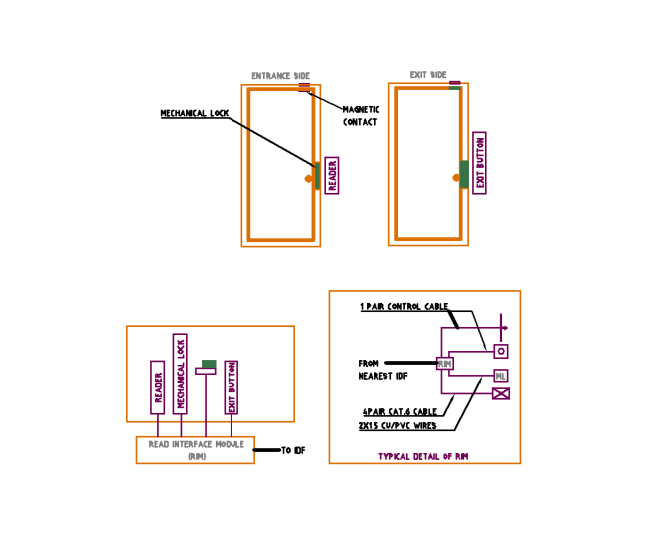
CABLETRAY OVERLAPPING TERMINATION DETAIL



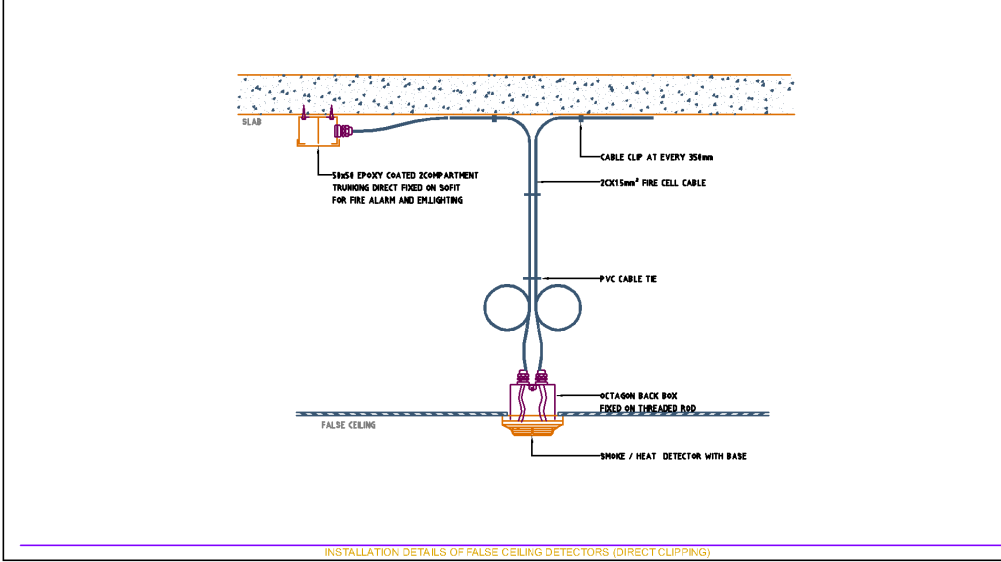
TYPICAL MOUNTING DETAIL FOR WALL MOUNTED FIXED CAMERA



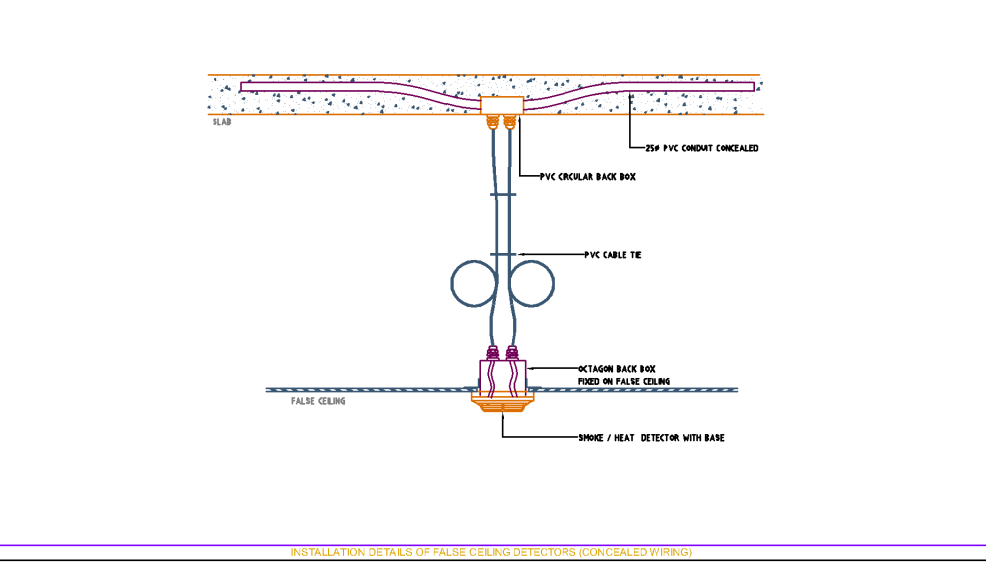
TYPICAL DETAIL OF FLUSH WALL MOUNTED BOX



TYPICAL DETAIL FOR DOORS WITH CARD ACCESS SYSTEM



INSTALLATION DETAILS OF FALSE CEILING DETECTORS (DIRECT CLIPPING)



INSTALLATION DETAILS OF FALSE CEILING DETECTORS (CONCEALED WIRING)

LIGHTING SYSTEM LEGEND

REF.	BLOCK	DESCRIPTION
LED1	●	LED Downlight Surface ceiling Mounted Efficacy 100lm/w, system flux 2000 lm, 20W, 6500K, Housing PMMA, opal diffuser, IP-20.
LED2	●	Ditto LED-01 but IP65
LED3	—	LED E Linear 0.6m x 200 mm x 6 W5000 K C° 1200mm Linear LED Lighting Fixture, surface mounted, Efficacy 100lm/w neutral White, with Opti Diffuser, Housing Aland PO, OPTICAL 3000lm, IP-20.
EM1	■	LED 1W Item Maintained Emergency Kit Recessed wall ceiling Mounted, Recessed Polycarbonate Plastic Body, Flame Retardant clear Polycarbonate Plastic Diffuser, Powder Coated Steel Steel Gear Tray, With Battery Kit For 3 Hours Duration.
EX1	■	LED 3W, NON-MAINTAINED EMERGENCY LIGHT ABOVE DOOR EXIT SIGN, WITH BATTERY KIT FOR 3-HOURS.
EX2	■	DITTO AS E2 BUT DOUBLE SIDE AND WITH SUSPENSION ROD.
SS-E	■	40W Integrated Solar LED Lighting 40W Efficacy At least 120lm Solar EL-Flat Lighting Systems type (All in one) : PV module capacity: 60WP, with 27Ah 12.8V LITHIUM LiFePO4 BATTERY, HYBRID charge controller, 15A-24V, LED driver 220V, remote contro, mounting bracket.
S1	⚡	10A, ONE, TWO, THREE GANG, ONE WAY SWITCH, IP-20
S1-W	⚡	10A, ONE, TWO, THREE GANG, ONE WAY SWITCH, IP-65
S2	⚡	10A, ONE, TWO GANG - TWO WAY SWITCH, IP-20
S2-W	⚡	10A, ONE, TWO GANG - TWO WAY SWITCH, IP-65

CLOSED CIRCUIT TELEVISION LEGEND

REF.	BLOCK	DESCRIPTION
C1	●	FIXED DOME INDOOR CAMERA
C2	■	FULL FUNCTION WALL MOUNTED CAMERA OUTDOOR TYPE WITH W.P ENCLASURE

LOW CURRENT SYSTEM LEGEND

REF.	BLOCK	DESCRIPTION
T-01	●	SINGLE RJ45, WALL MOUNTED TELEPHONE OUTLET
D01	●	SINGLE RJ45, WALL MOUNTED DATA OUTLET
T-03	■	PRIVATE AUTOMATIC BRANCH EXCHANGE
T-04	■	DATA SWITCH CABINET
T-05	●	RJ45, COUNTER MOUNTED DATA OUTLET
T-06	■	MAIN DATA CABINET
	●	SINGLE RJ11, WALL MOUNTED TV OUTLET
	■	WALL MOUNTED JUNCTION BOX FOR TV SYSTEM

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CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:
Electrical Details 6

DRAWING Type:
ELECTRICAL

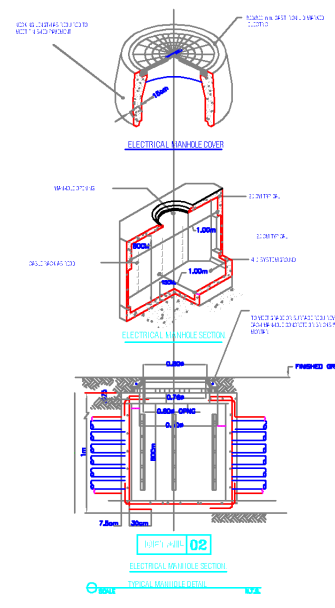
Drawing Status:
Design Drawing

DESIGNED BY :
MSF

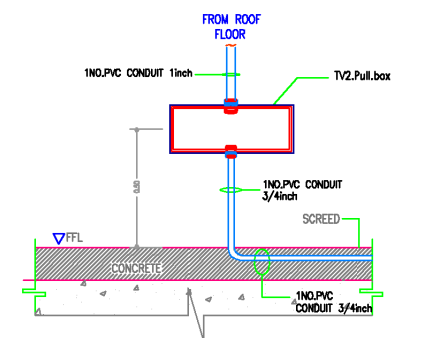
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Paper Size:

DATE:
July ,2025

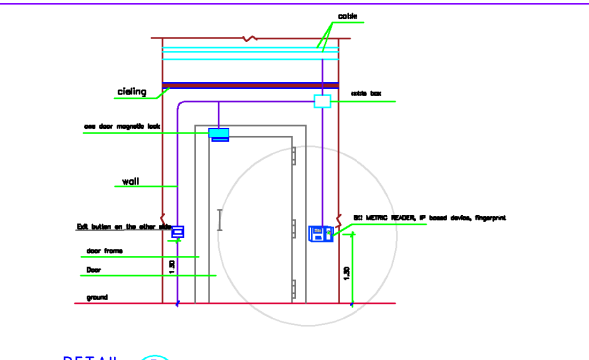
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ELE-023



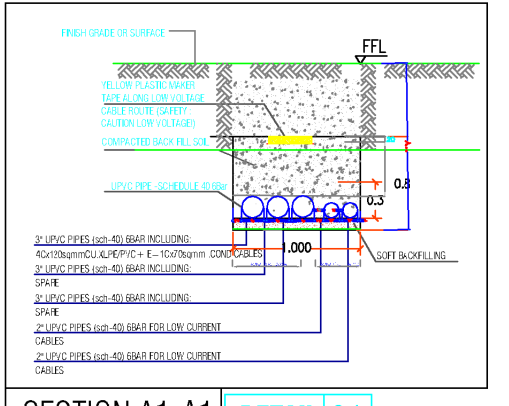
DETAIL 02
ELECTRICAL SERVICE COVER
NTS
NOT TO SCALE



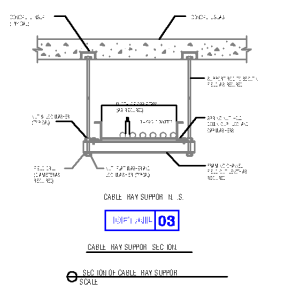
DETAIL 03
PULL BOX FOR TV SOCKET OUTLET
NTS
NOT TO SCALE



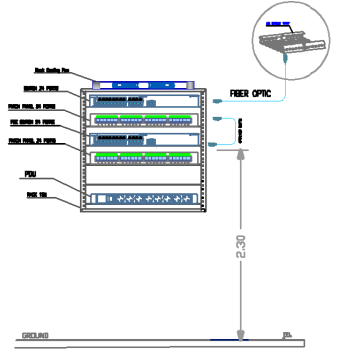
DETAIL 04
BIO METRIC READER, IP based device, fingerprint
NTS
NOT TO SCALE



SECTION A1-A1
DETAIL 01

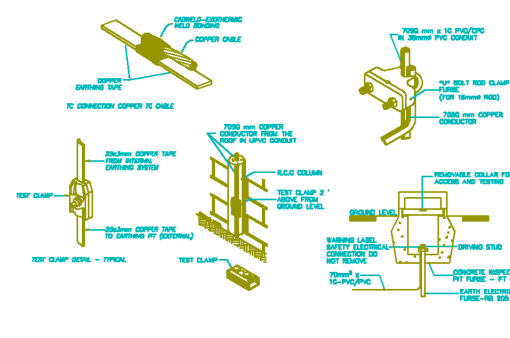
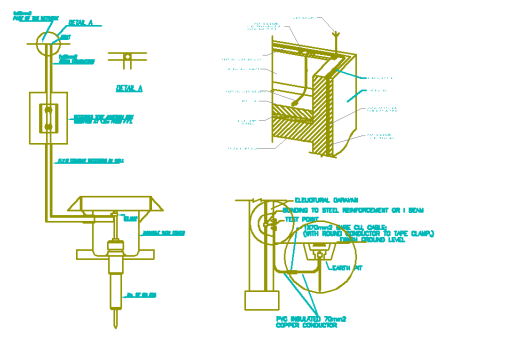
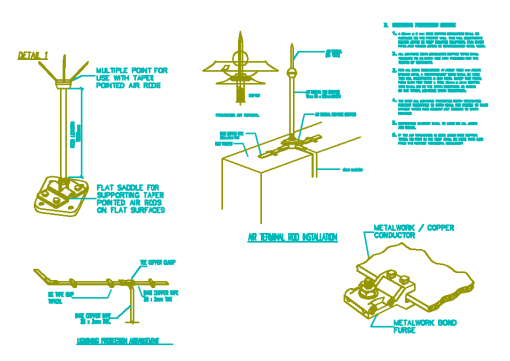


DETAIL 05
CABLE TRAY SUPPORT
NTS
NOT TO SCALE



DETAIL 06
RACK 12U-SUB DATA CABINET
NTS
NOT TO SCALE

TYPICAL DETAILS



STANDARD POWER LEGEND		
BLOCK NAME	SYMBOL	NOTES
PO-01	⊙	SOCKET OUTLET, 15AMP, 1Ø, 240V/50HZ, 4E BWP, 1Ø, SWITCHED, SHUTTERED, UNIVERSAL, MULTI-SWAMP.
PO-01a	⊙	Dimm but IP65.
PO-02	⊙	SOCKET OUTLET, 15AMP, 1Ø, 240V/50HZ, 4E BWP, 1Ø, SWITCHED, SHUTTERED, UNIVERSAL, MULTI-STANDARD FEED FROM UPS PANEL BOARD.
PO-03	⊙	1Ø, 240V/50HZ, 4E POWER SOCKET OUTLET/MAIN STANDARD, SHUTTERED.
PO-04	⊙	SOCKET OUTLET, 15AMP, 1Ø, 240V/50HZ, 4E BWP, 1Ø, SWITCHED, SHUTTERED, UNIVERSAL, MULTI-STANDARD.
PO-04a	⊙	Dimm but FEED FROM UPS PANEL BOARD.
PO-05	⊙	2Ø, 240V DOUBLE POLE SWITCH WITH INDICATOR AND BREAKING POLE, IP44.
PO-06	⊙	1Ø, 240V SINGLE PHASE, FUSED SPUR SWITCH OUTLET WITH PLUG LAMP AND FLEX CABLE OUTLET.
PO-07	⊙	POWER ISOLATOR, 3PHASE, WEATHER PROOF, X DENOTES FOR AMPERE RATING.
PO-08	⊙	POWER ISOLATOR, 1PHASE, WEATHER PROOF, X DENOTES FOR AMPERE RATING.
PO-09	⊙	CEILING MOUNTED FAN.
PO-10	⊙	1Ø, 240V JUNCTION BOX.
PO-11	⊙	UPBLAST EXHAUST FAN.
PO-12	⊙	WALL MOUNTED EXHAUST FAN.
PO-13	⊙	DECORATIVE INCANDESCENT.
PO-14	⊙	SPLIT OUTDOOR CONDENSING UNIT.
PO-15	⊙	THERMOSTAT FOR SPLIT CONDENSING UNIT.
PO-16	⊙	1Ø, 240V SWITCH FOR FAN WITH INDICATOR.
PO-17	⊙	1Ø, 240V SWITCH FOR CEILING FAN WITH CONTROLLER.

GENERAL NOTES:

- EACH BLOCK HAS ATTRIBUTE TAGS, MAKE SURE TO FILL THE PROPERTY IN THE SUITABLE TAG.
- FOR THE FOLLOWING BLOCKS PO-01, PO-02, PO-03, PO-04, PO-05, PO-06, PO-07, PO-15 & PO-16 TWO TAGS ARE PROVIDED, TAG 'A' FOR FEEDER (NORMAL, EMERGENCY, UPS), AND 'WP' TAG FOR WEATHER PROOF / GF PROTECTION, SHOWS DIFFERENT POSSIBILITIES FOR THE MENTIONED BLOCKS.

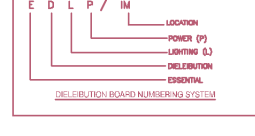
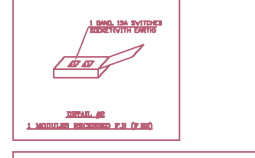
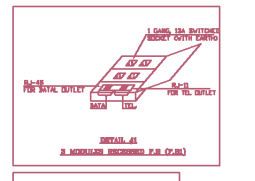
SYMBOL	PROPERTY	PROTECTION
⊙	NORMAL	NO
⊙	EMERGENCY	NO
⊙	UPS	NO
⊙	EMERGENCY	GF
⊙	UPS	GF

- FOR THE FOLLOWING BLOCKS PO-05, PO-07 & PO-11 ONE TAG IS PROVIDED FOR CURRENT RATING.

SYMBOL	CURRENT RATING
⊙	20A
⊙	15A
⊙	10A
⊙	20A

- FOR THE FOLLOWING BLOCKS PO-10 & PO-11, THREE TAGS ARE PROVIDED, TAG 'A' FOR FEEDER (NORMAL, EMERGENCY, UPS), 'WP' TAG FOR WEATHER PROOF, 'GF' PROTECTION, AND 'D' DIFFERENT POSSIBILITIES FOR THE MENTIONED BLOCKS.

EARTHING AND LIGHTING LEGEND		
REF.	BLOCK	DESCRIPTION
E1	⊙	CONCRETE EARTHING INSPECTION PIT (30x30cm)
E2	⊙	EXOTHERMIC WELDING AND BONDING
E3	⊙	SOLID COPPER RWD MIN L=1200mm, DIAMETER=16mm.
E4	⊙	#16mm, 2m LENGTH COPPER AIR TERMINAL AT HIGHEST POINT
E5	⊙	COPPER CONDUCTOR USED AS DOWN CONDUCTOR
E6	⊙	EARTH BARS



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PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital - KILO District
Ibb Government / Yemen

DRAWING TITLE:
Electrical Details 7

DRAWING Type:
ELECTRICAL

Drawing Status:
Design Drawing

DESIGNED BY :
MSF

SCALE: As Shown
Paper Size:

DATE:
July ,2025

DWG.NO:
ELE-024

Fourth:

Plumping Drawings

Funded by:



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CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Cover of Plumping Drawings

DRAWING Type:

Plumping Drawings

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

PLM-000

Table of Content

No	Drawing Title	No	Drawing Title
PLM-001	Water Feeding and Distribution	PLM-008	Plan of Rain Water Drainage on roof
PLM-002	Internal Water Network Details 1	PLM-010	Grease Trap
PLM-003	Internal Water Network Details 2	PLM-011	Plan of External Network
PLM-004	Plan of water network on the Roof		
PLM-005	Plan of Sanitation Network		
PLM-006	Sanitation internal Network Details 1		
PLM-007	Sanitation internal Network Details 2		

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OPERATING CENTER GENEVA
CENTRE OPERATIONNEL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
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DRAWING TITLE:

Table of Content

DRAWING Type:

Plumping Drawings

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

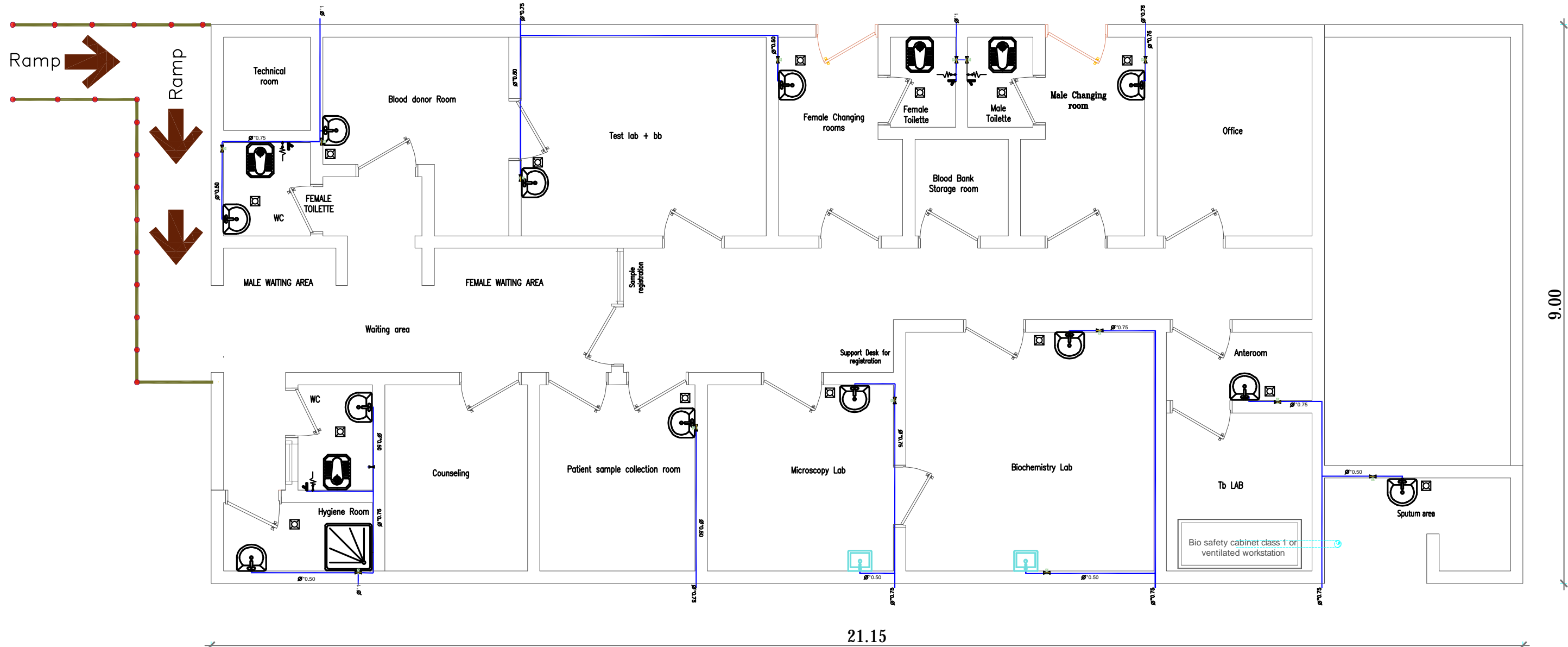
Paper Size:

DATE:

July ,2025

DWG.NO:

PLM-000

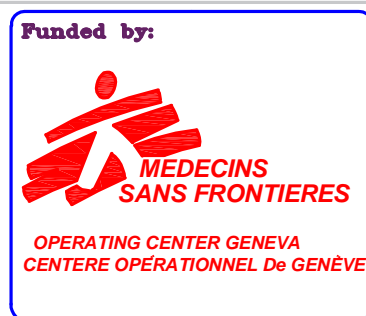


Water Feeding and Distribution

Table of symbols and terminology	
Symbol	Type
	مرحاض افرنجي مع السيفون Western toilet with a siphon
	مرحاض عربي مع السيفون Arabic toilet with a siphon
	حوض لغسيل الوجه والايدي Face and hand washbasin
	حوض قدم للاستحمام Foot bathtub for shower
	حوض غسيل الاواني Dishwasher sink

Table of symbols and terminology	
Symbol	Type
	مبشبات أرضية (مصفايات) Floor drains
	خلاط مياه حار وبارد Hot and cold water mixer
	شطف مياه مع حنفي مياه كروم للحمامات Water bidet with a chrome water tap
	محبس تحكم بالمياه Water control valve
	عروة تهوية قطر 4 حش Duct ventilation (4 inches diameter)

Table of symbols and terminology	
Symbol	Type
	خط امداد مياه باردة Cold water supply line
	فتحة صيانة - طيبة تسليك Checking hole - cleaning plug
	مواسير صرف قطر 4 حش Drainage pipes (4 inches diameter)
	مواسير صرف قطر 1.5 حش Drainage pipes (1.5 inches diameter)



PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
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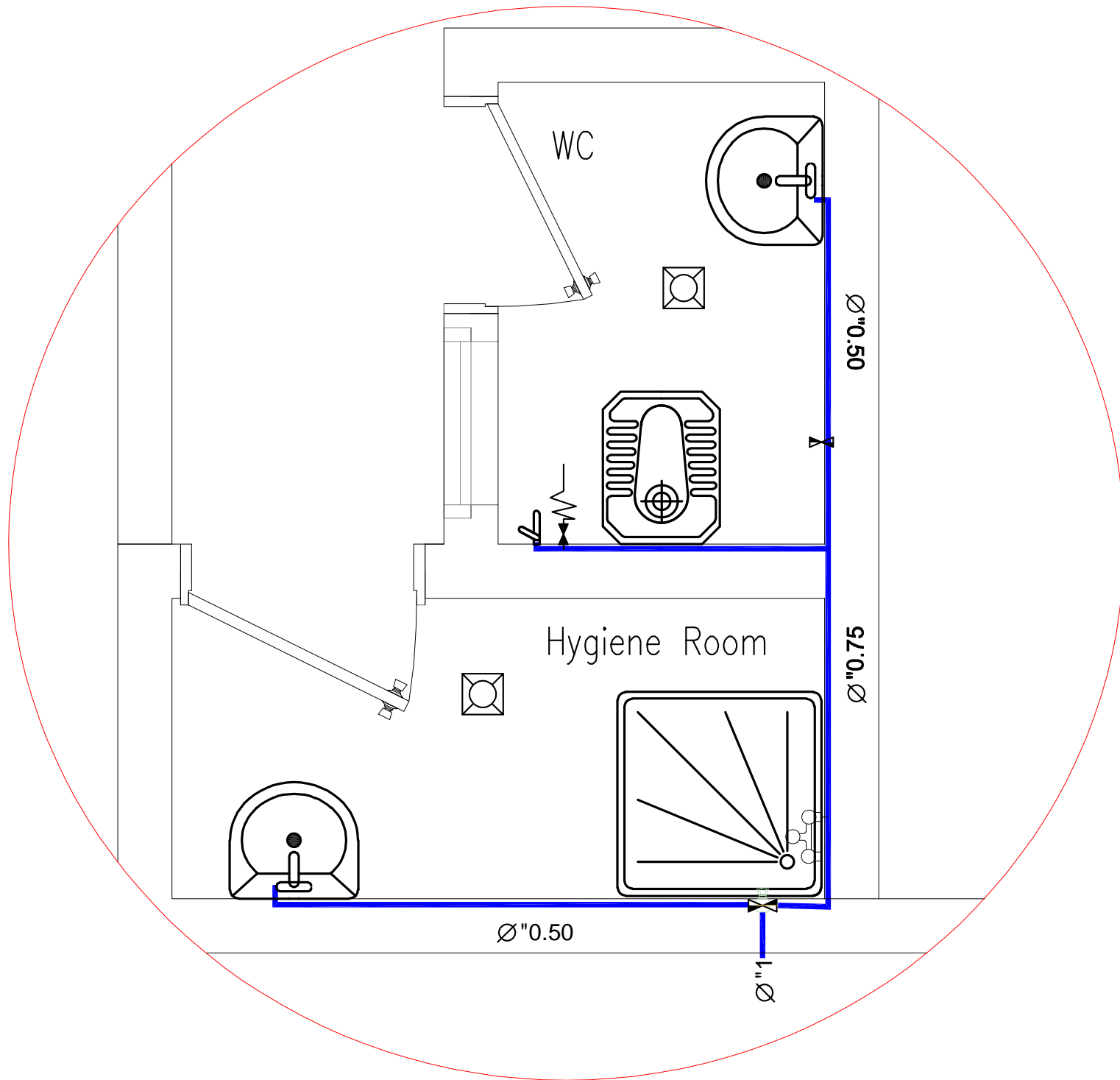
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Water Feeding and Distribution

DRAWING Type:
Plumping Drawings

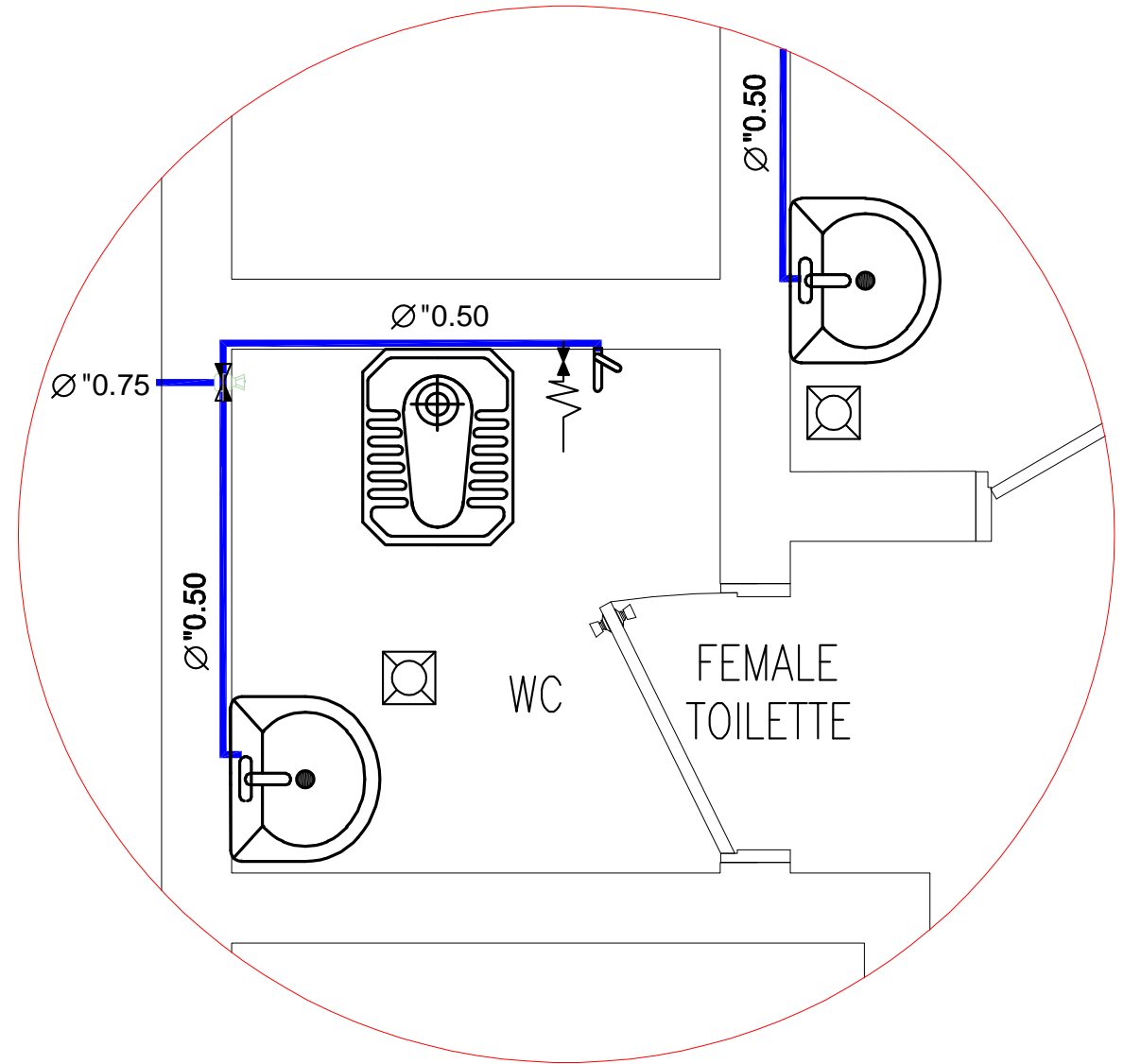
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Design Drawing Paper Size:

DESIGNED BY : MSF
DATE: July ,2025

DWG.NO:
PLM-001



Detail A



Detail B

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CENTRE OPERATIONAL DE GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Internal Water Network Details 1

DRAWING Type:

Plumping Drawings

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

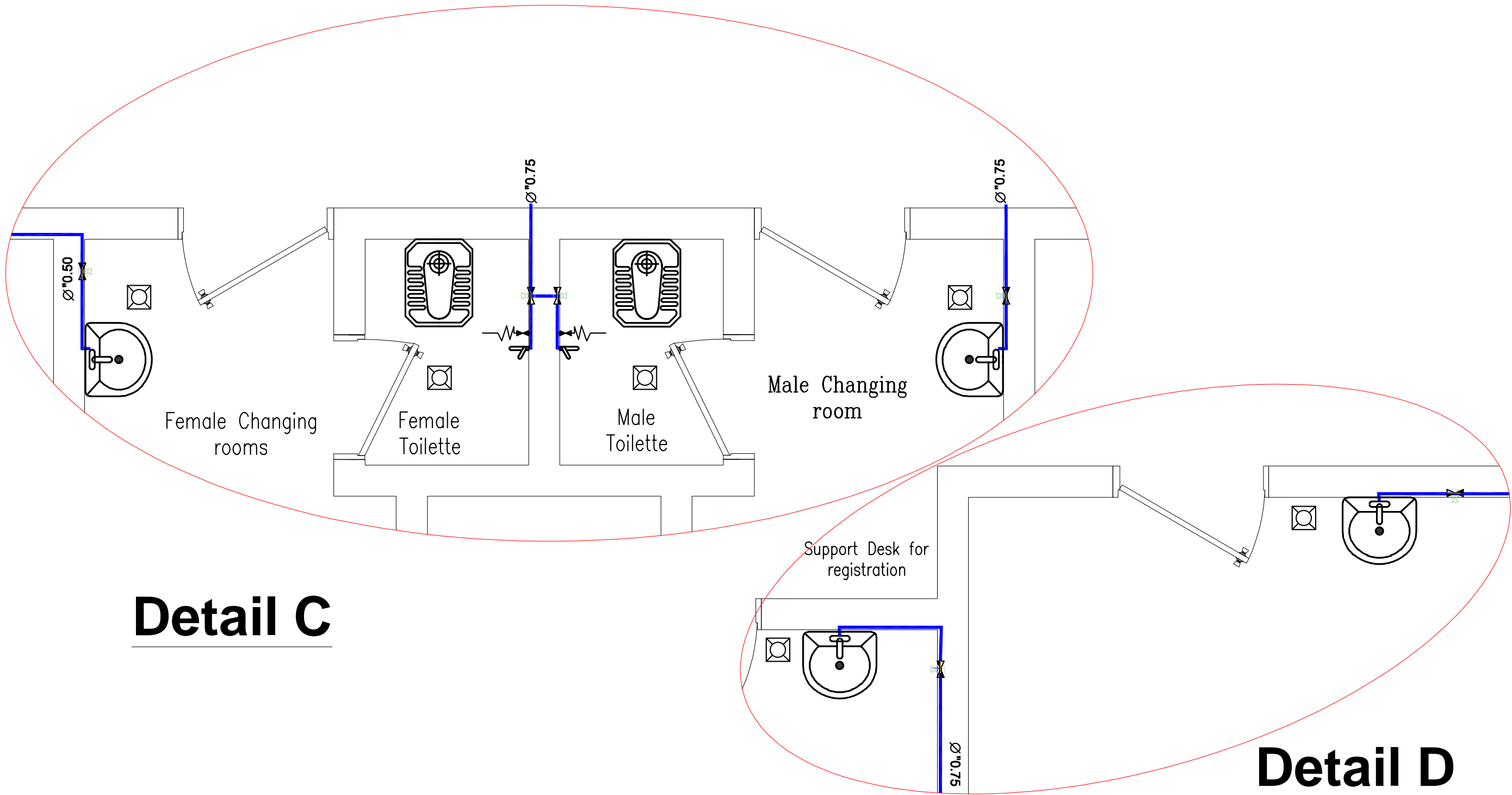
MSF

DATE:

July ,2025

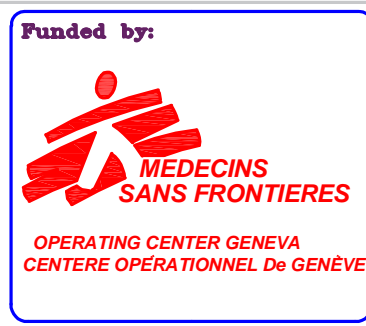
DWG.NO:

PLM-002



Detail C

Detail D



PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

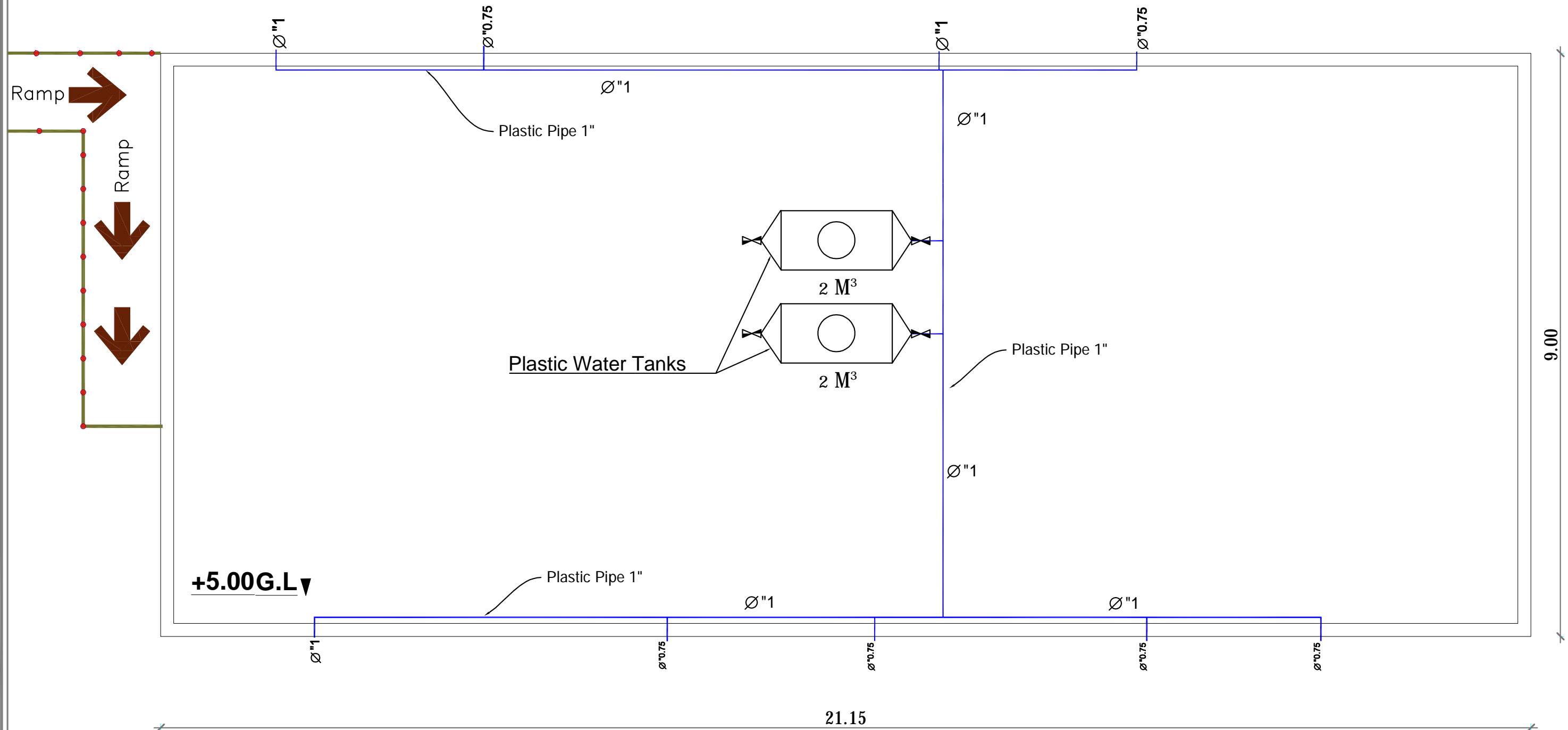
DRAWING TITLE:
Internal Water Network Details 2

DRAWING Type:
Plumping Drawings

Drawing Status: **SCALE: As Shown**
Design Drawing **Paper Size:**

DESIGNED BY : **DATE:**
MSF **July ,2025**

DWG.NO:
PLM-003



Plan of water network on the Roof

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CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Plan of water network on the Roof

DRAWING Type:

Plumping Drawings

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

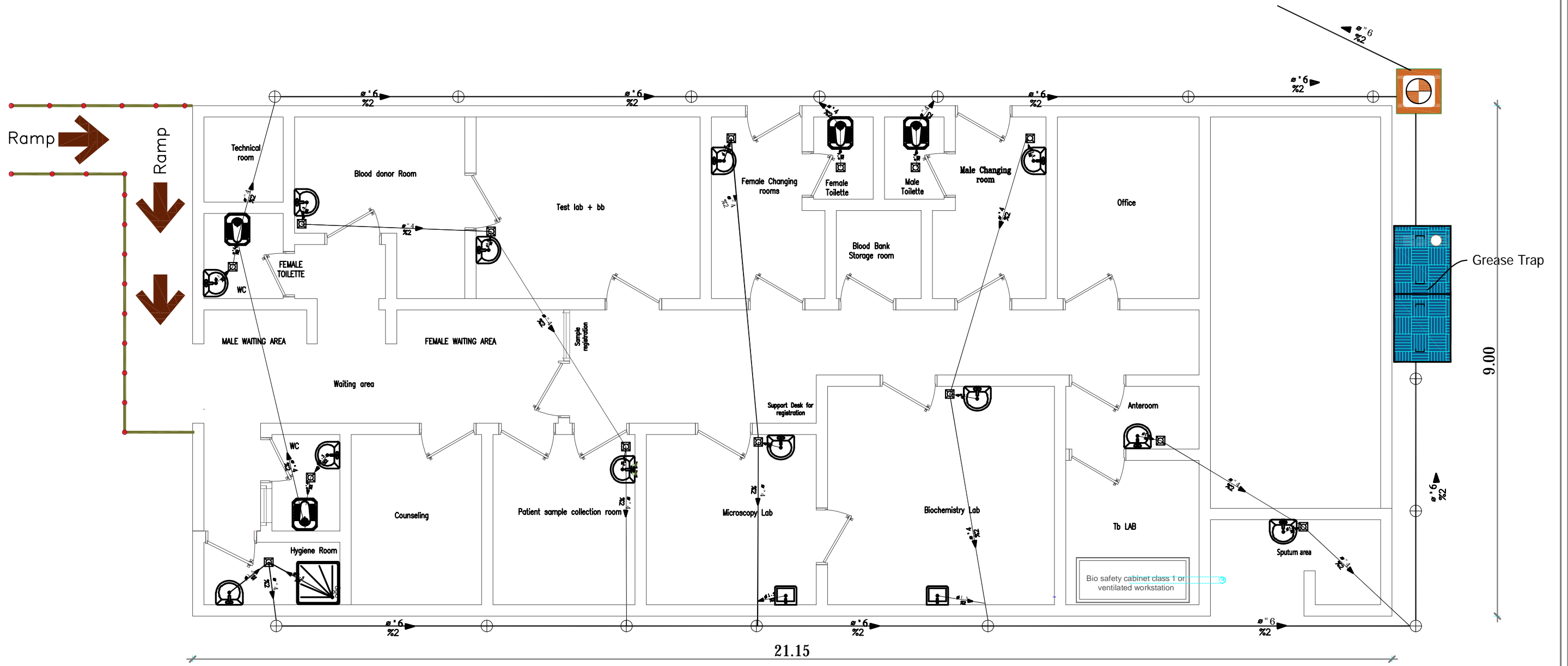
Paper Size:

DATE:

July ,2025

DWG.NO:

PLM-004



Plan of Sanitation network

Table of symbols and terminology	
Symbol	Type
	مرحاض افرنجى مع السيفون Western toilet with a siphon
	مرحاض عربى مع السيفون Arabic toilet with a siphon
	حوض لغسيل الوجه والايدي Face and hand washbasin
	حوض قدم للاستحمام Foot bathtub for shower
	حوض غسيل الاواني Dishwasher sink

Table of symbols and terminology	
Symbol	Type
	ممشيات أرضية (مصفيات) Floor drains
	خلاط مياه حار وبارد Hot and cold water mixer
	Water bidet with a chrome water tap شطف مياه مع حنفي مياه كروم للحمامات
	محبس تحكم بالمياه Water control valve
	عدو تهوية قطر 4 حنفي Duct ventilation (4 inches diameter)

Table of symbols and terminology	
Symbol	Type
	خط امداد مياه بارد Cold water supply line خط امداد مياه بارد
	فتحة مسيطة - طية تسليك Checking hole- cleaning plug
	مواسير صرف قطر 4 حنفي Drainage pipes (4 inches diameter)
	مواسير صرف قطر 1.5 حنفي Drainage pipes (1.5 inches diameter)

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CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
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DRAWING TITLE:

Plan of Sanitation Network

DRAWING Type:

Plumping Drawings

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

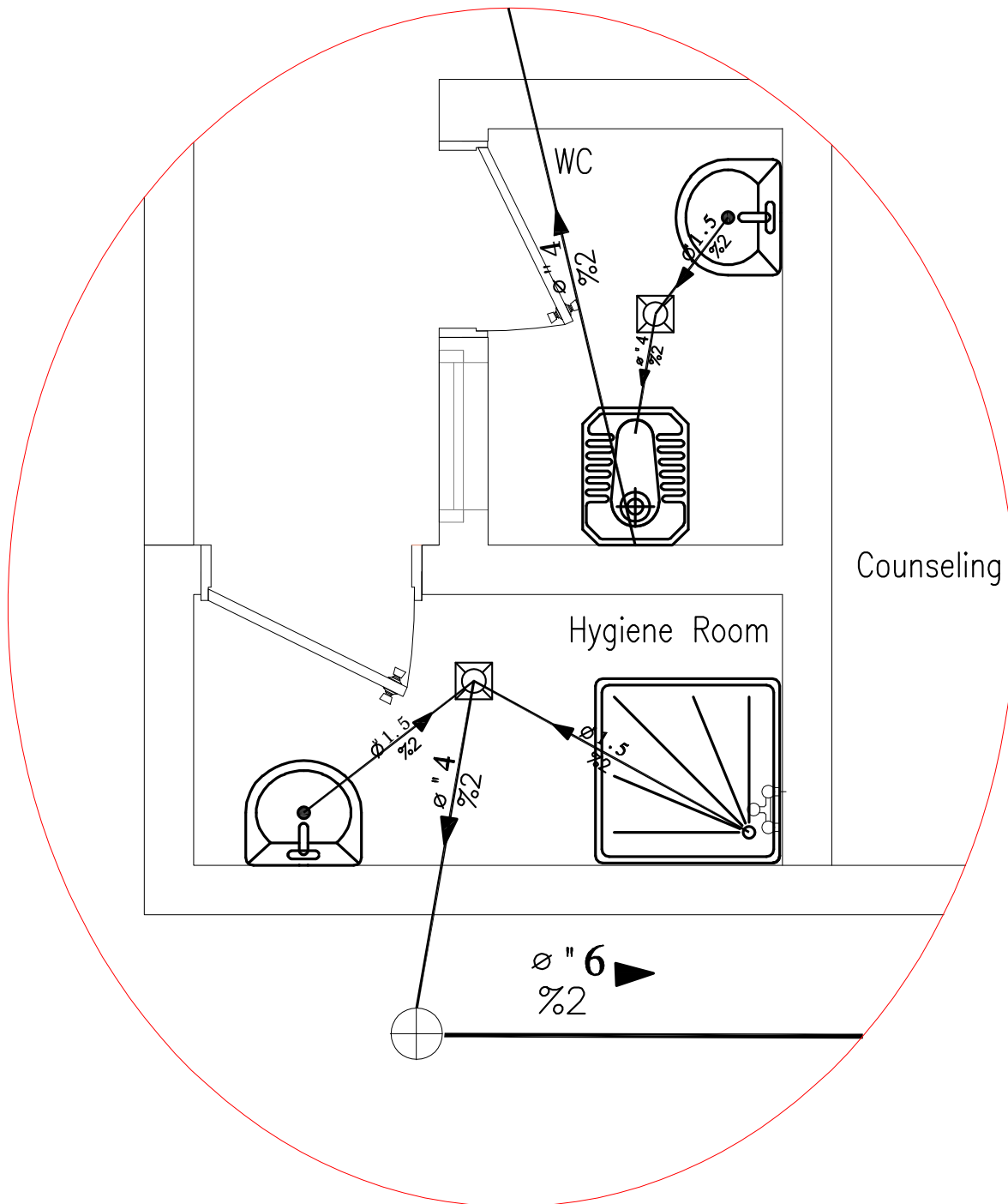
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DATE:

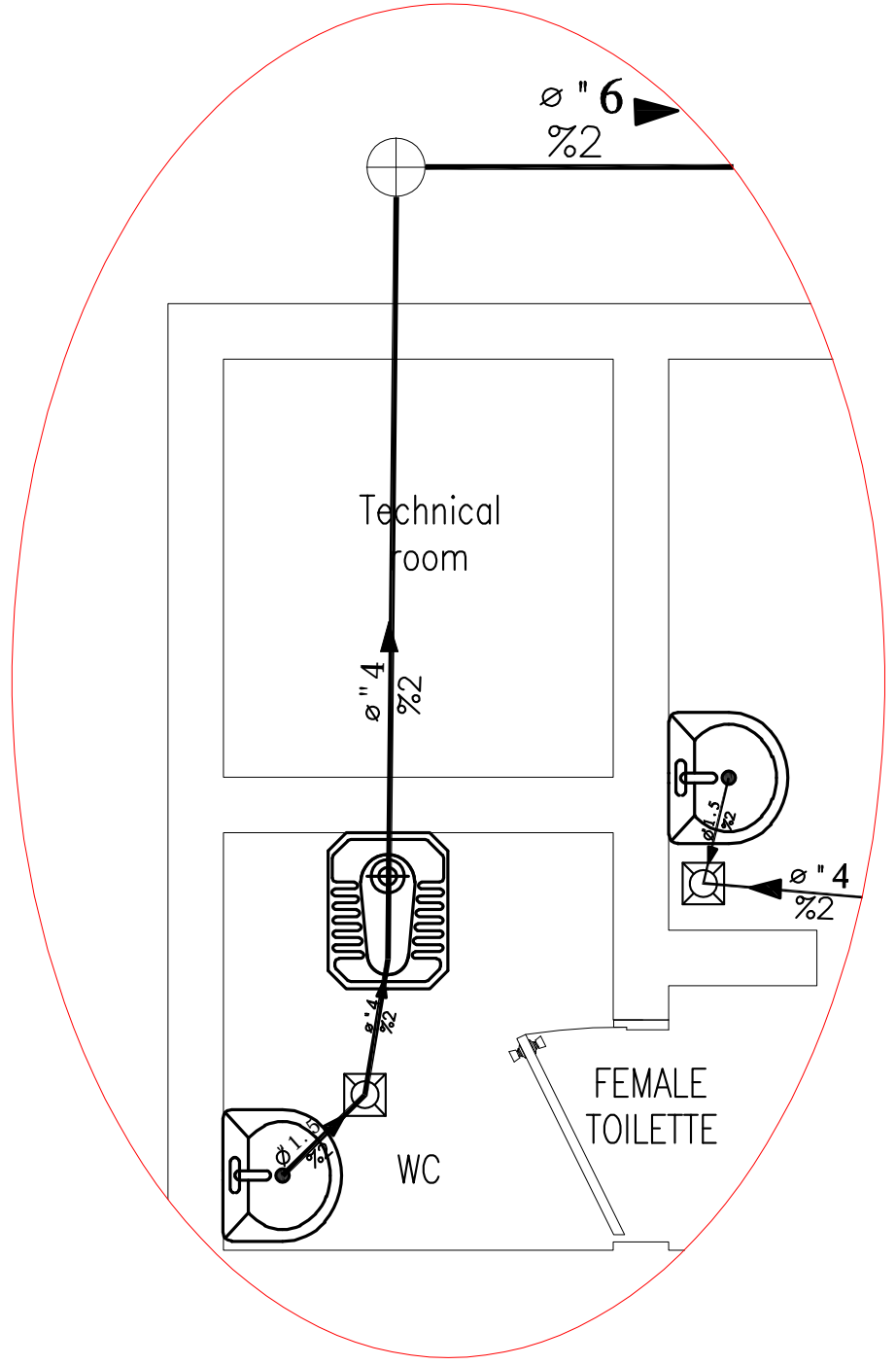
July ,2025

DWG.NO:

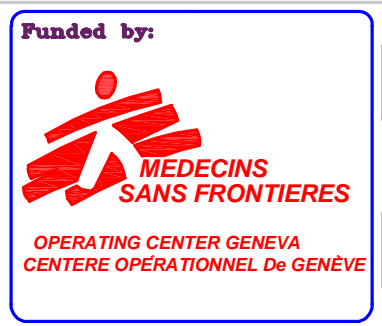
PLM-005



Detail A



Detail B



PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:
Sanitation internal Network Details 1

DRAWING Type:
Plumping Drawings

Drawing Status:
Design Drawing

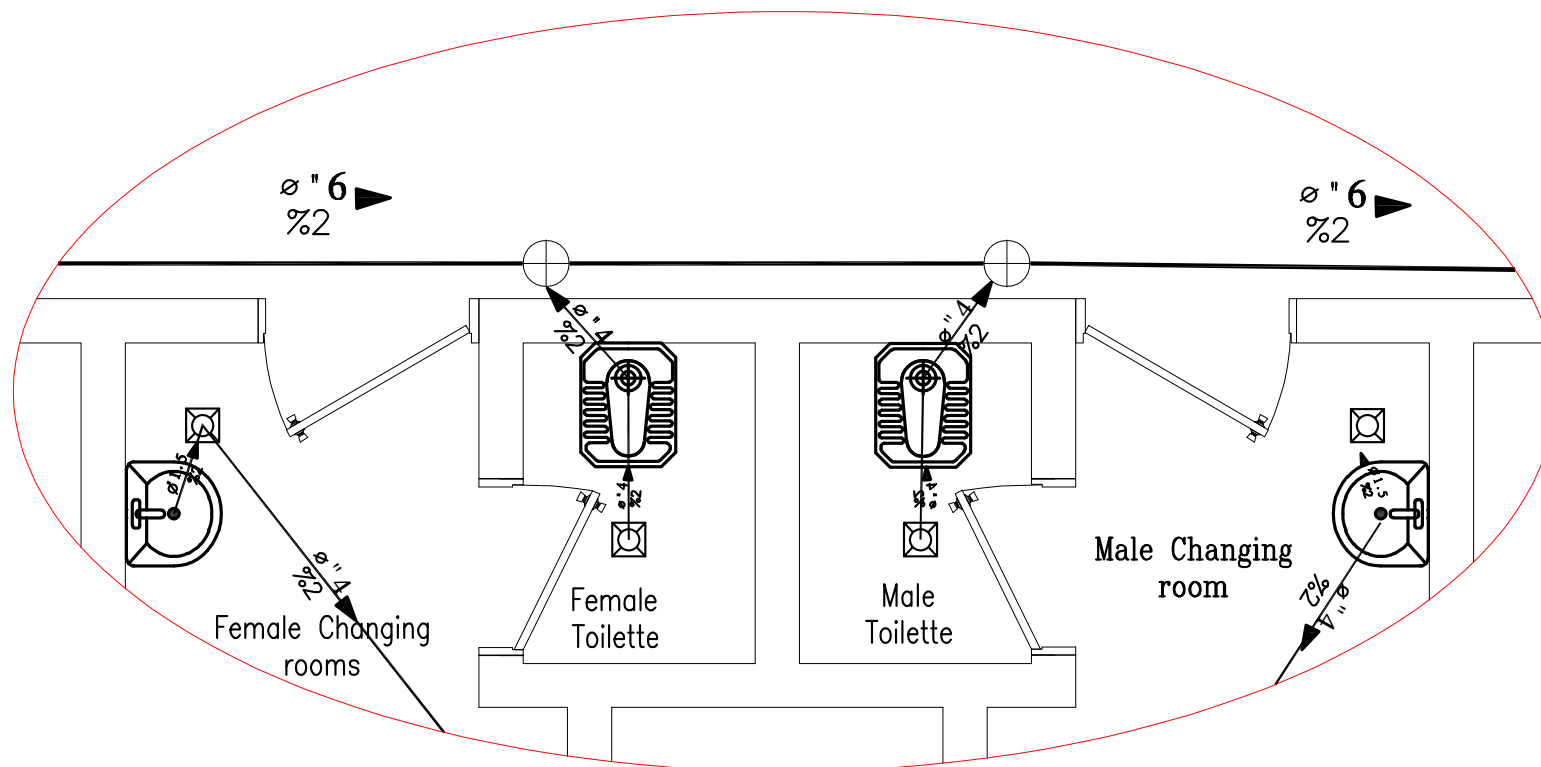
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MSF

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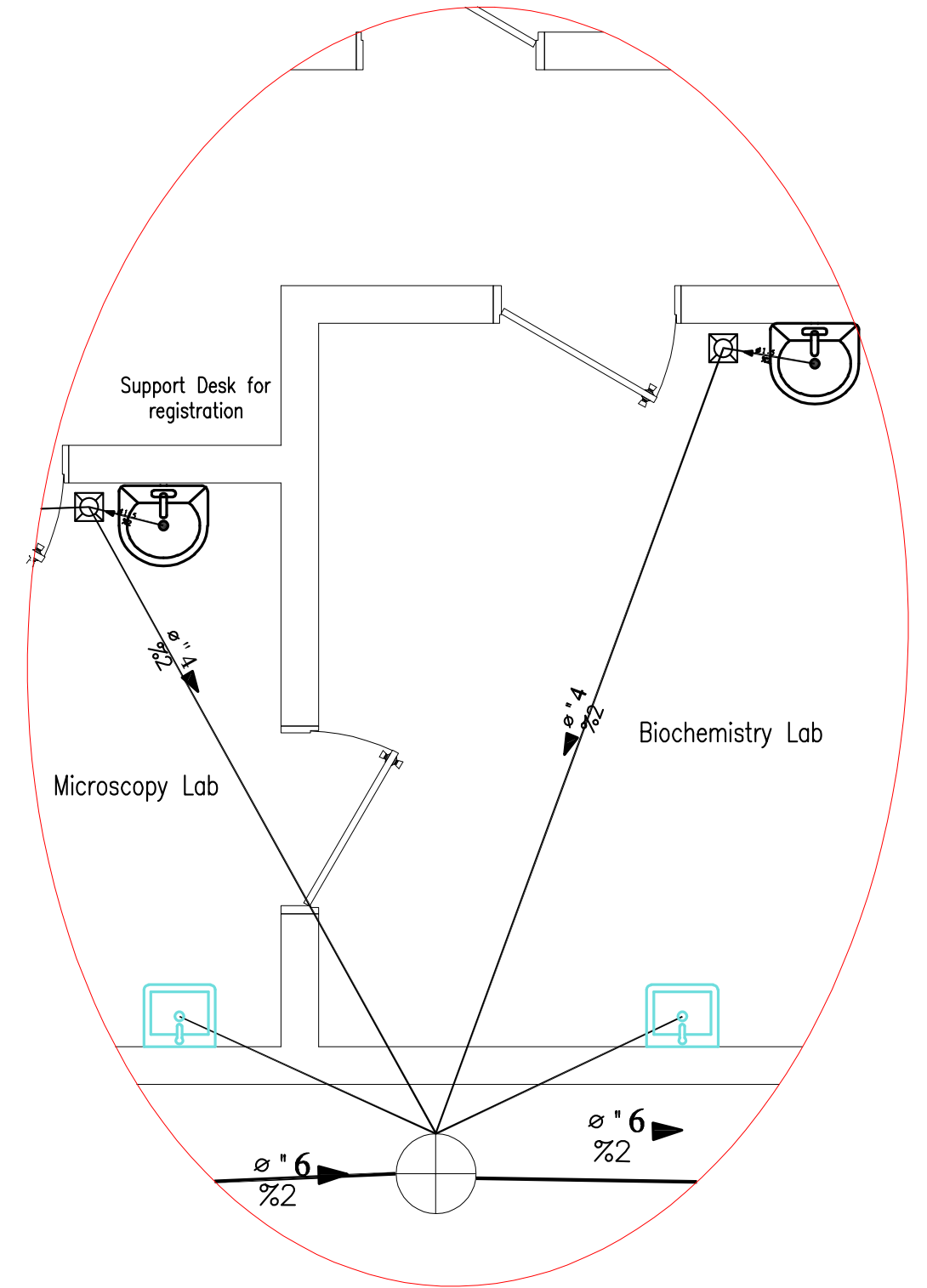
DATE:
July ,2025

DWG.NO:

PLM-006



Detail C



Detail D

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CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Sanitation internal Network Details 2

DRAWING Type:

Plumping Drawings

Drawing Status:

Design Drawing

SCALE: As Shown

Paper Size:

DESIGNED BY :

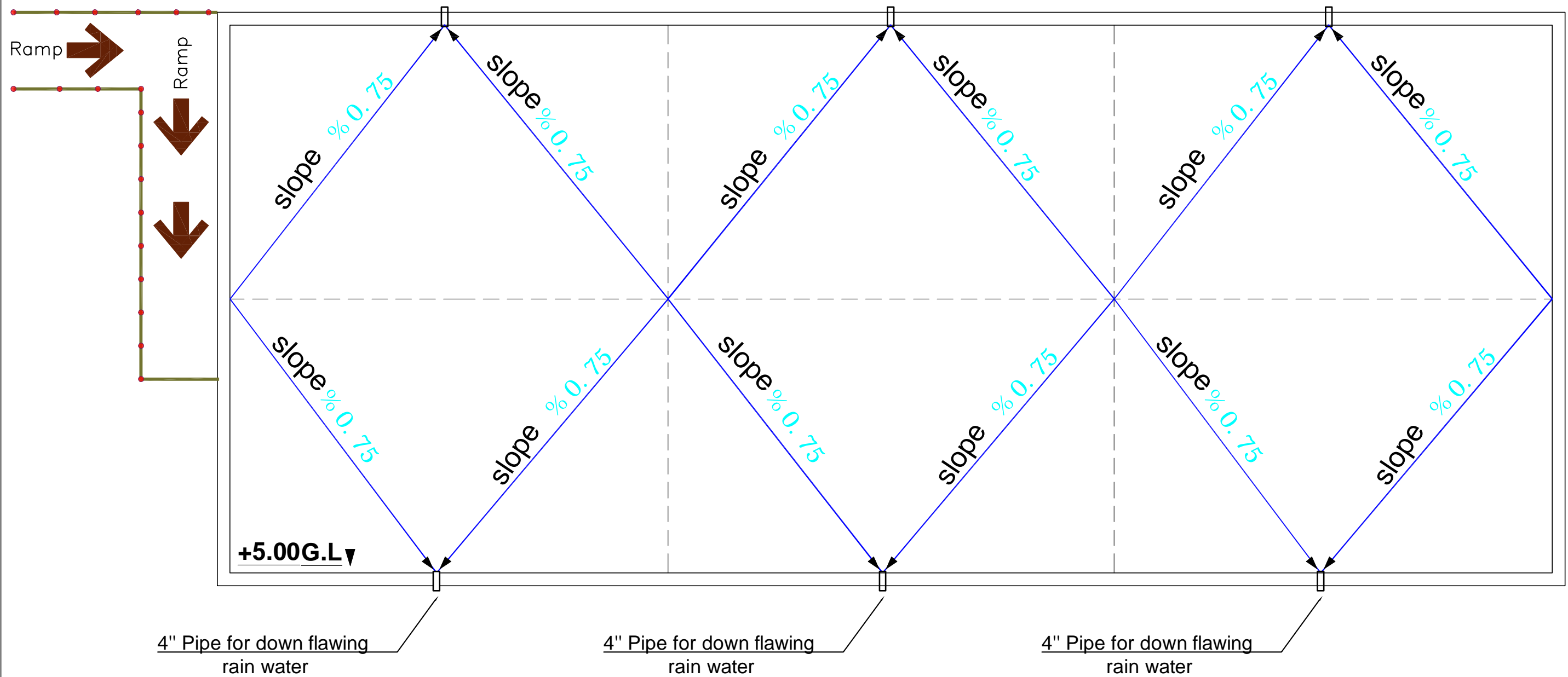
MSF

DATE:

July ,2025

DWG.NO:

PLM-007



Plan of Rain Water Drainage on roof

Funded by:



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CENTRE OPERATIONAL DE GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Plan of Rain Water Drainage on roof

DRAWING Type:

Plumping Drawings

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

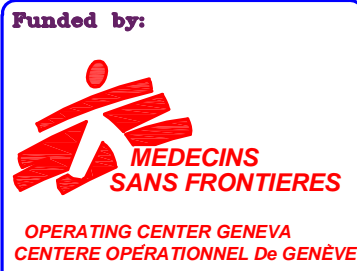
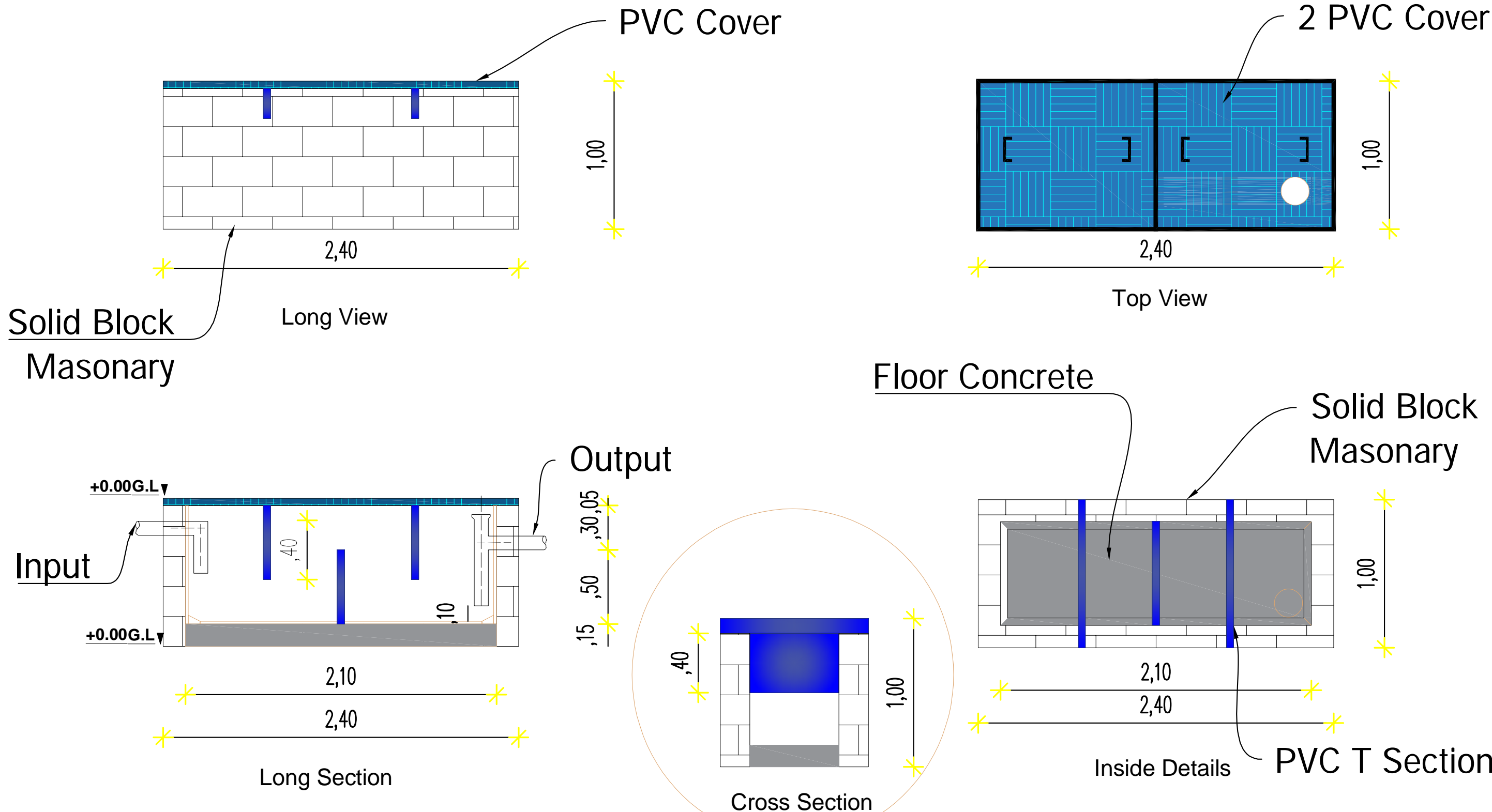
Paper Size:

DATE:

July ,2025

DWG.NO:

PLM-008



PROJECT Title:
Construction a new Laboratory for KILO Hospital

PROJECT Location:
KILO General Hospital – KILO District
Ibb Government / Yemen

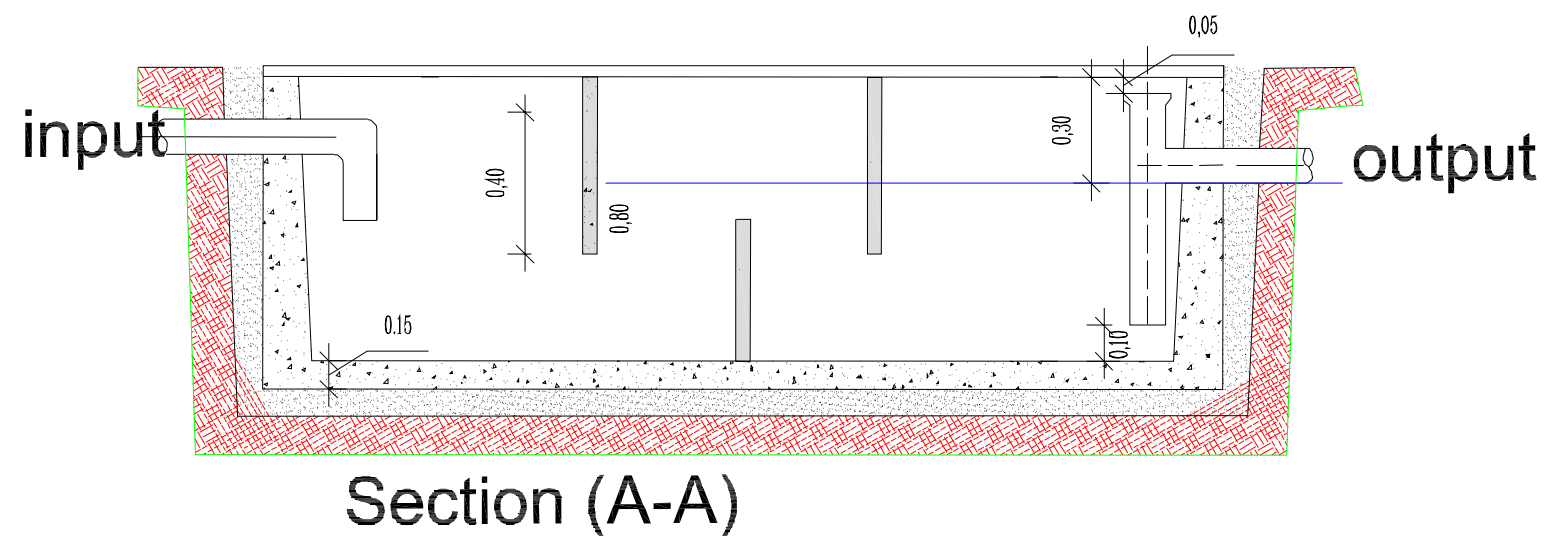
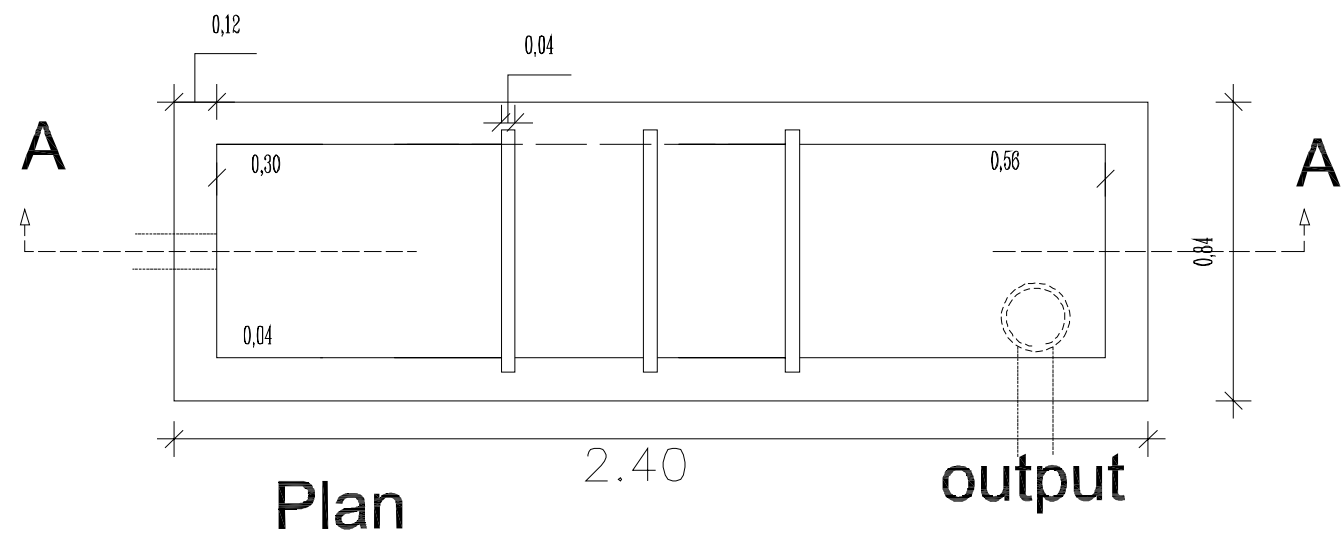
DRAWING TITLE:
Grease Trap

DRAWING Type:
Plumping Drawings

Drawing Status: **SCALE: As Shown**
Design Drawing **Paper Size:**

DESIGNED BY : **DATE:**
MSF **July ,2025**

DWG.NO:
PLM-009



Funded by:



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CENTRE OPERATIONAL De GENÈVE

PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Grease Trap

DRAWING Type:

Plumping Drawings

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

PLM-010



Funded by:



PROJECT Title:

Construction a new Laboratory for KILO Hospital

PROJECT Location:

KILO General Hospital – KILO District
Ibb Government / Yemen

DRAWING TITLE:

Plan of External Network

DRAWING Type:

Plumping Drawings

Drawing Status:

Design Drawing

DESIGNED BY :

MSF

SCALE: As Shown

Paper Size:

DATE:

July ,2025

DWG.NO:

PLM-011