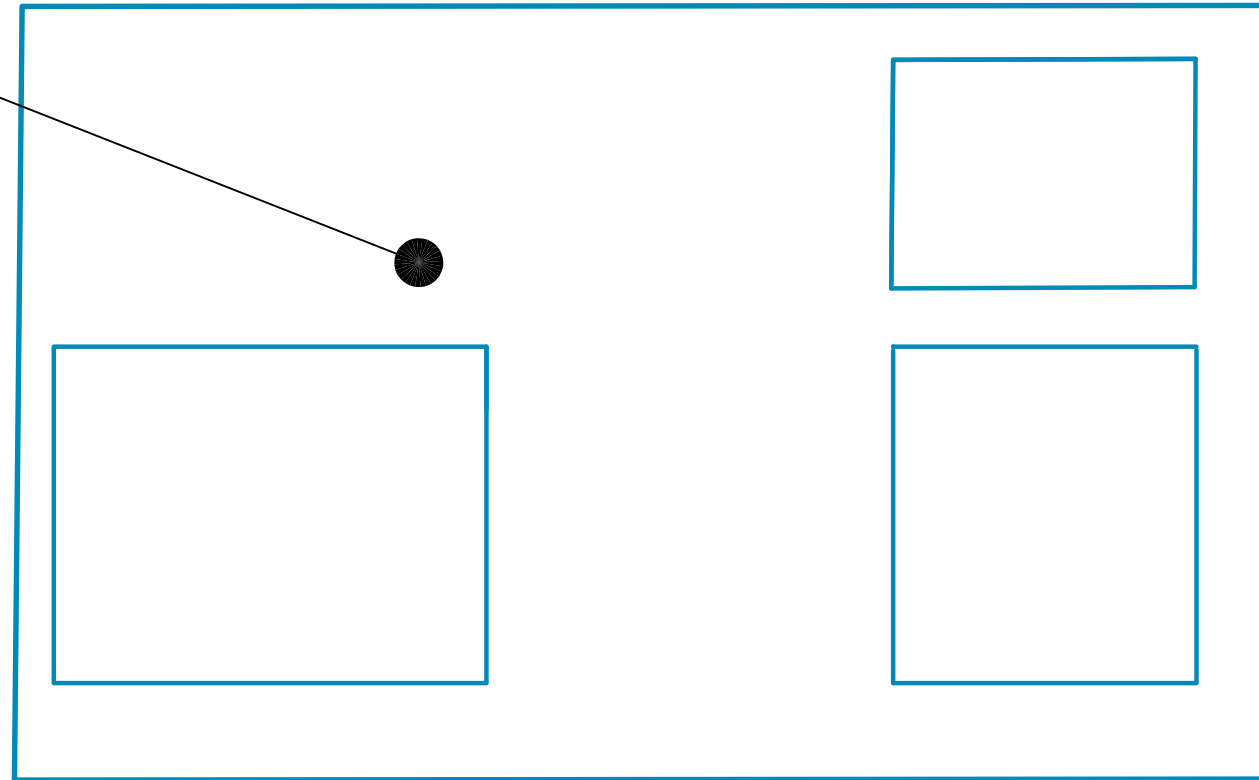


## PROJECT COORDINATES

Lat = 13.5937828° Lon = 43.9904849°

Al-Wafaa Health Center



PROJECT LOCATION



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

DRAWING TITLE:

**PROJECT LOCATION**

مركز الوفاء الصحي

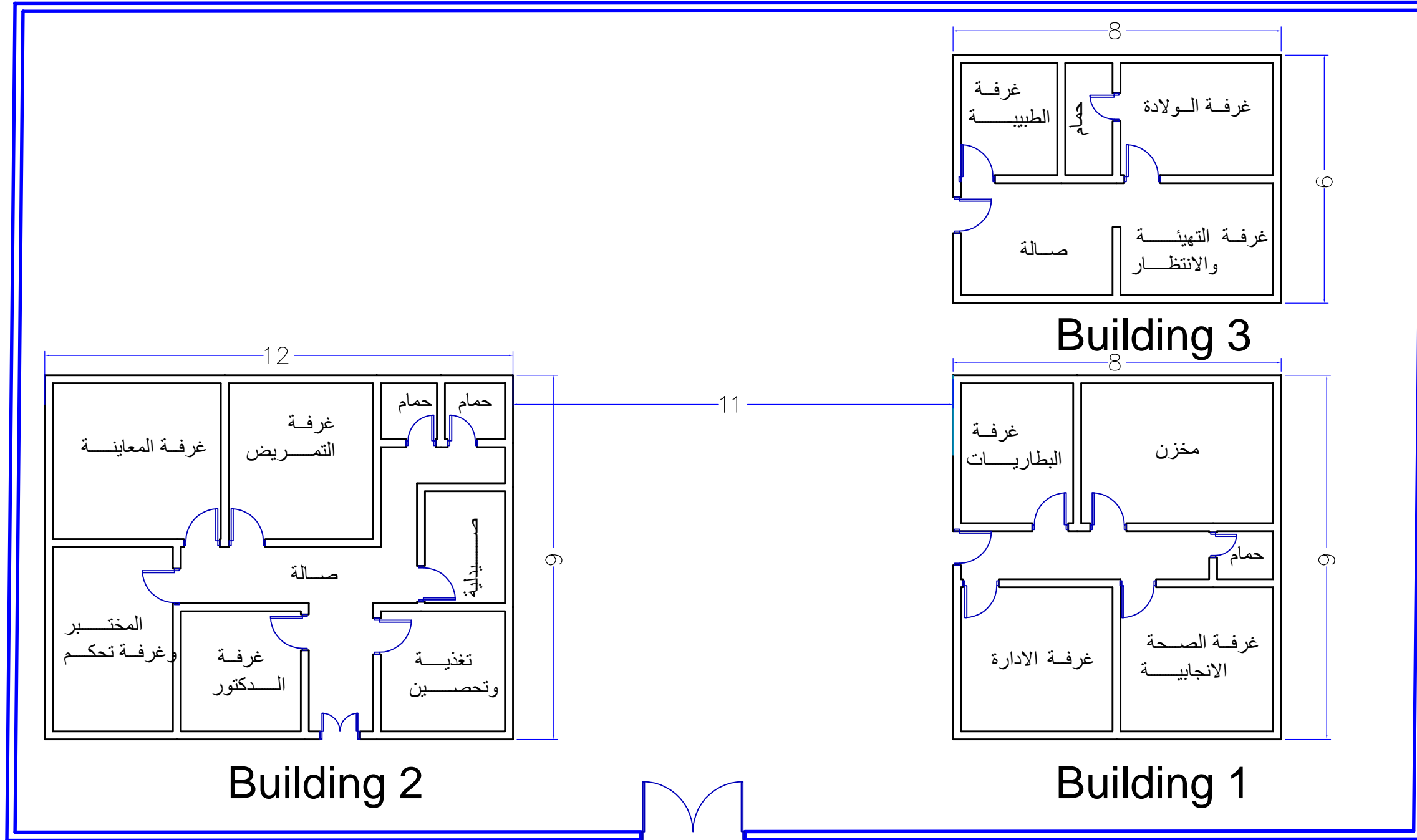
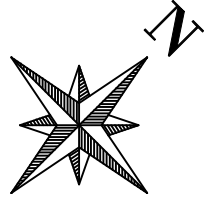
مسقط افقي

01

sheet  
اسم اللوحة

Sheet No  
رقم اللوحة

**SCALE:**  
AS SHOWN.



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

DRAWING TITLE:

Floors Layouts

مركز الوفاء الصحي

مسقط افقي

02






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اسم اللوحة

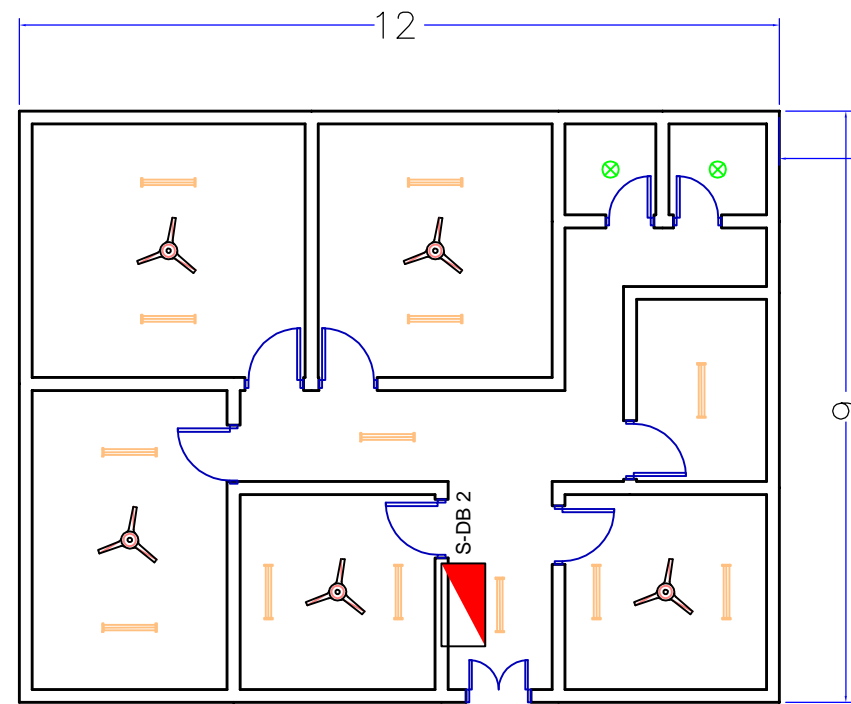
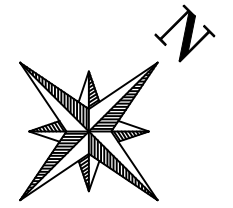
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رقم اللوحة

SCALE:

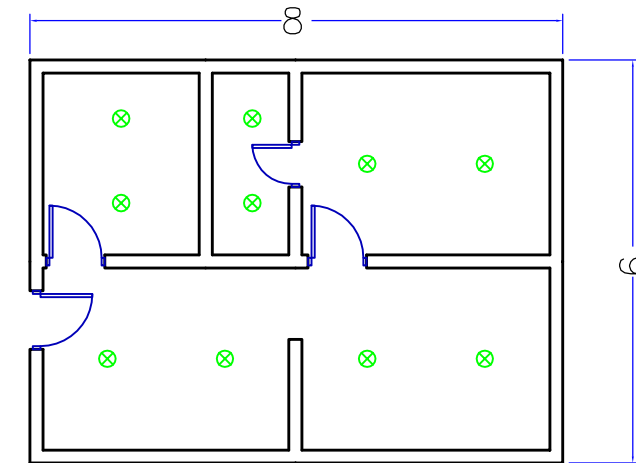
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**LEGEND:**

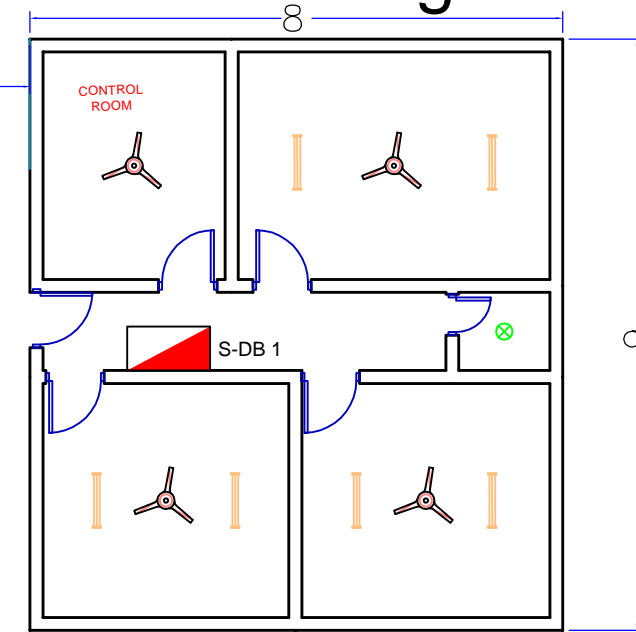
SYMBOL	DESCRIPTION
	LED light fixture (20 W)
	LED light (12 w)
	Ceiling fans
	DISTRIBUTION BOARD
	Battery Rack



**Building 2**



**Building 3**



**Building 1**



Supply & Install Solar System  
for Schools in Aden

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

**DRAWING TITLE:**

**ELECTRICAL plan**

مركز الوفاء الصحي

مسقط افقي

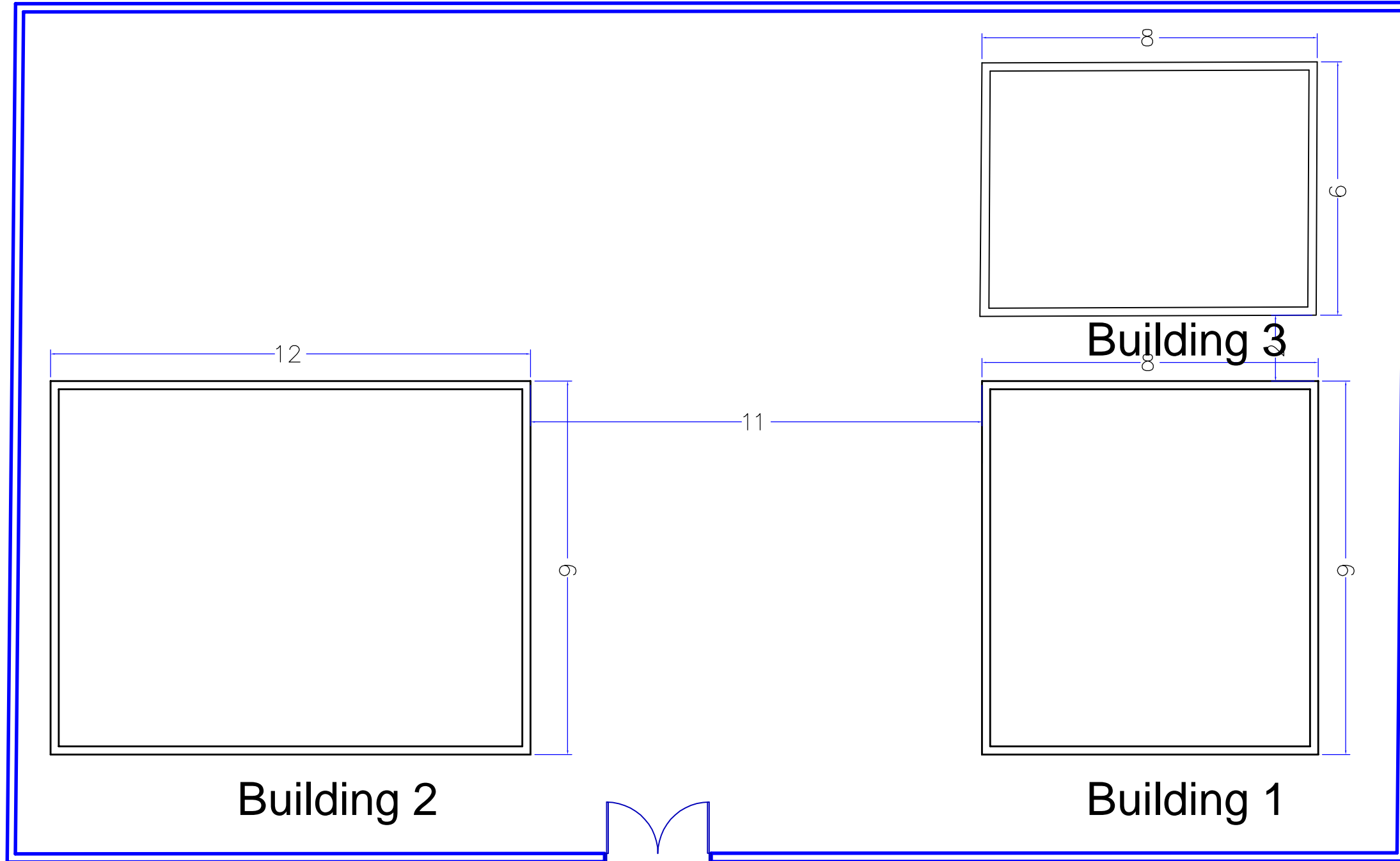
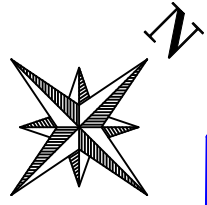
03

sheet  
اسم اللوحة

Sheet No  
رقم اللوحة

**SCALE:**

**AS SHOWN.**



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

**DRAWING TITLE:**

**Floors Layouts**

مركز الوفاء الصحي

مسقط افقي

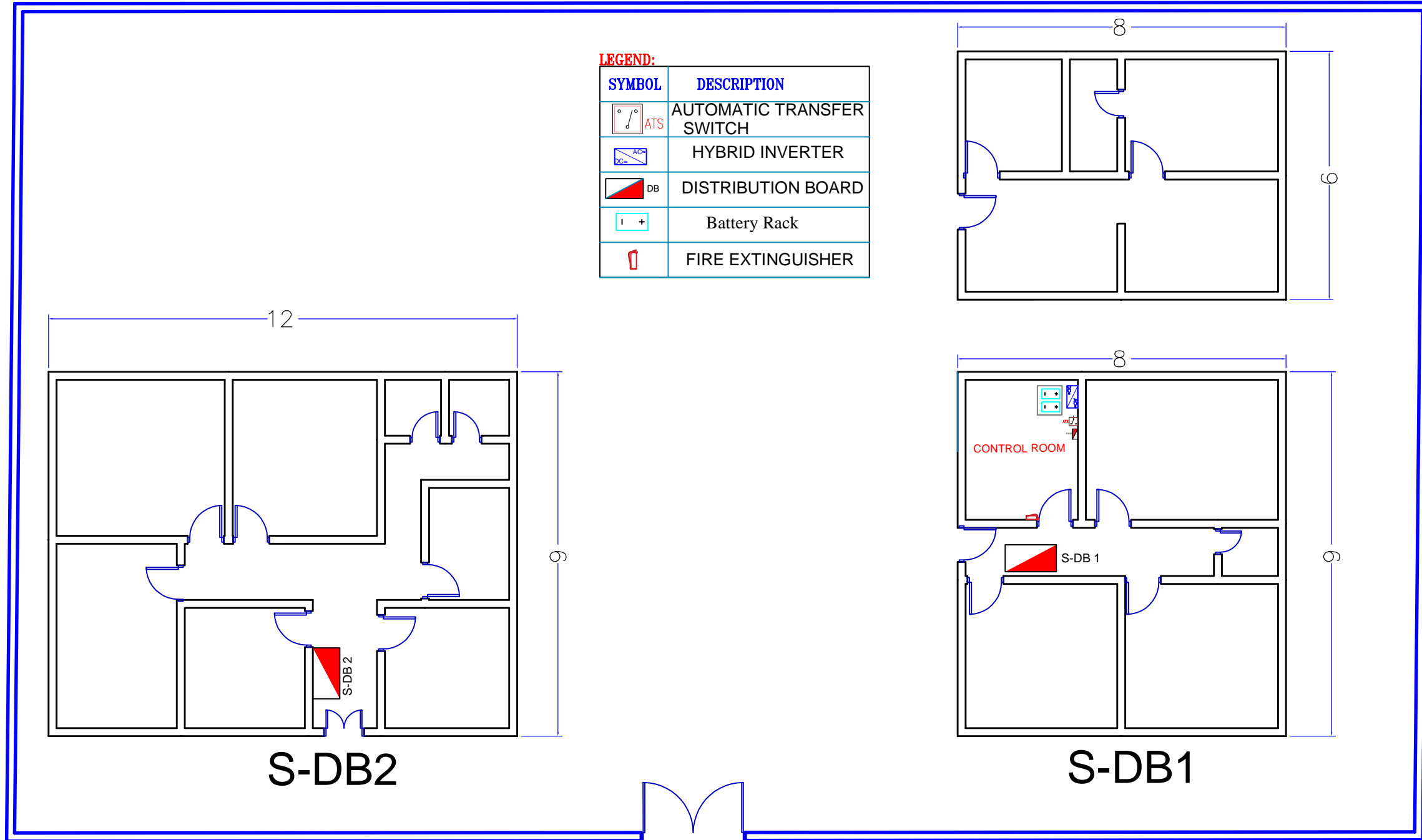
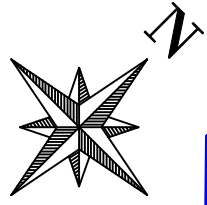
04

sheet  
اسم اللوحة

Sheet No  
رقم اللوحة

**SCALE:**

**AS SHOWN.**



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

**DRAWING TITLE:**  
**Battery Room Diagram**

مركز الوفاء الصحي

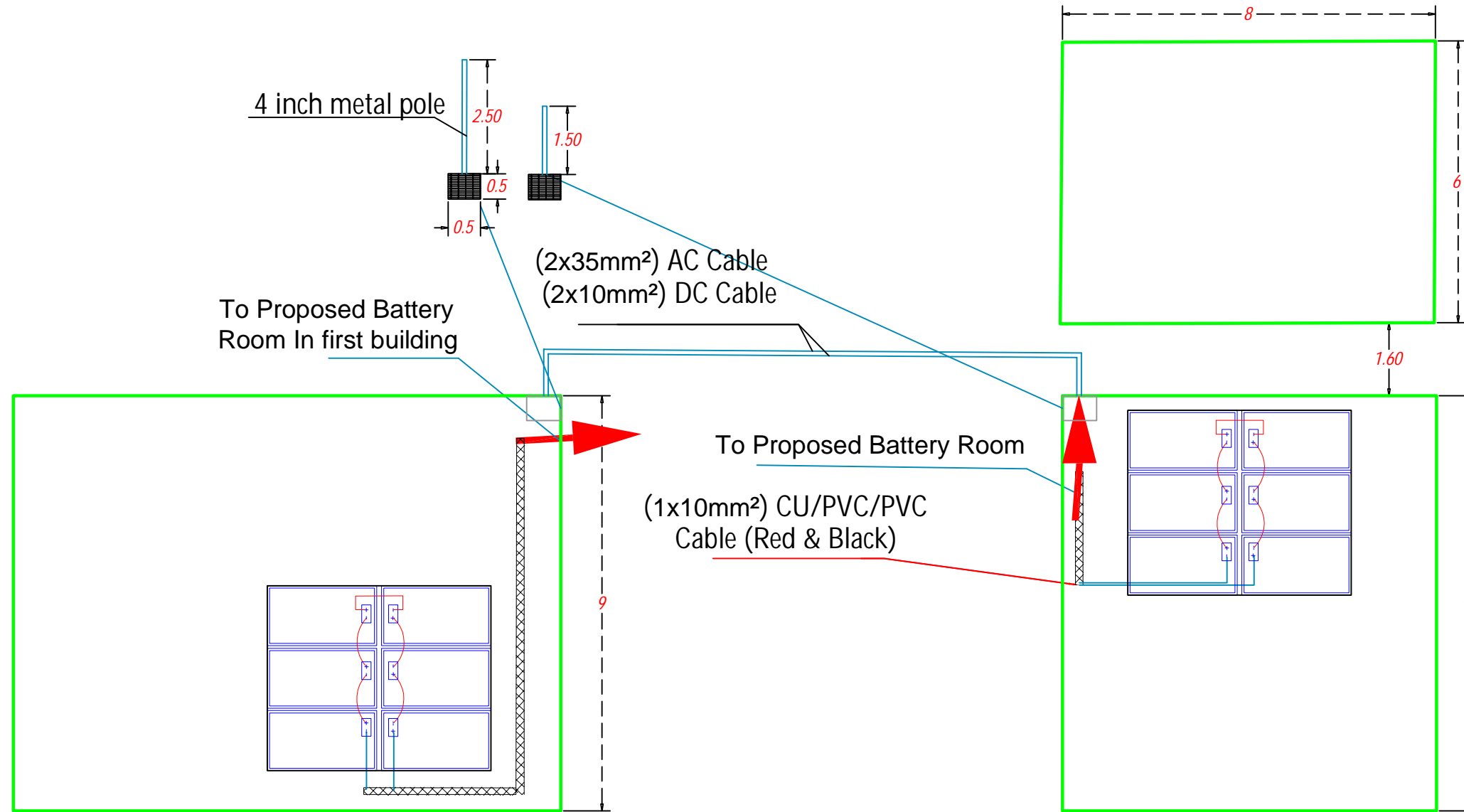
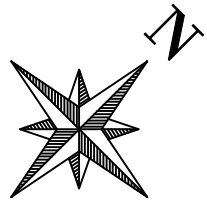
مسقط افقي

05

sheet  
اسم اللوحة

Sheet No  
رقم اللوحة

**SCALE:**  
**AS SHOWN.**



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

**DRAWING TITLE:**

**PV DISTRIBUTION**

مركز الوفاء الصحي

مسقط افقي

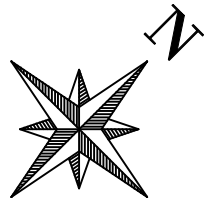
06

sheet  
اسم اللوحة

Sheet No  
رقم اللوحة

**SCALE:**

**AS SHOWN.**



MIN DISTANCE IS 6TIME LENGTH OF EARTH ROR

TO LIGHTNING ARRESTER 1CX 25SQ.MM

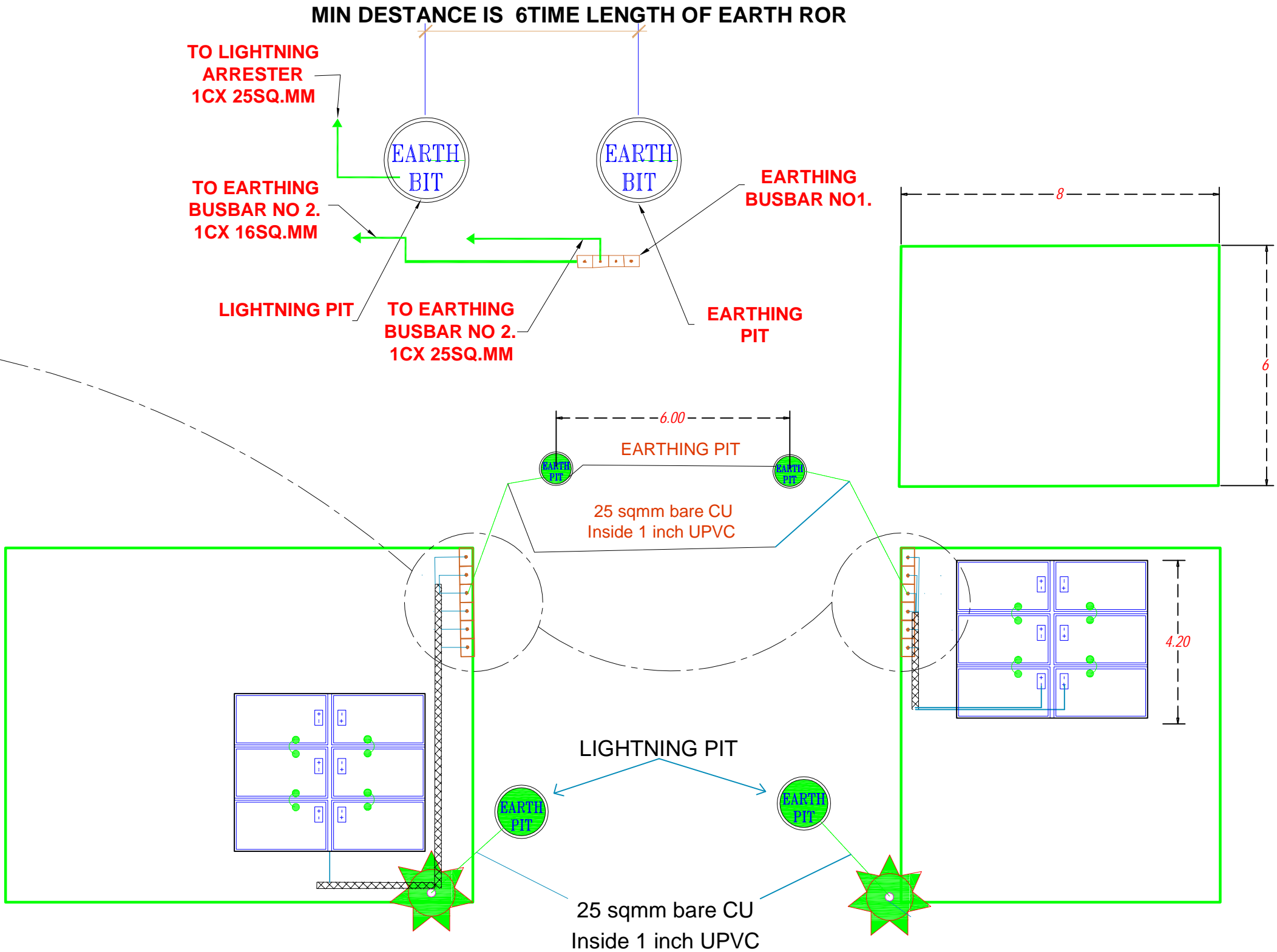
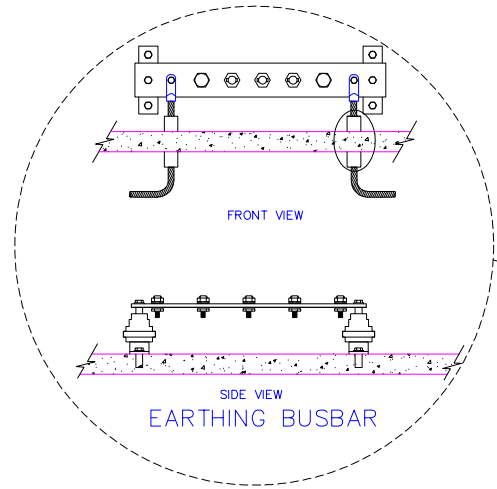
TO EARTHING BUSBAR NO 2. 1CX 16SQ.MM

LIGHTNING PIT

TO EARTHING BUSBAR NO 2. 1CX 25SQ.MM

EARTHING PIT

EARTHING BUSBAR NO1.



Supply & Install Solar System for Al-Wafaa Health Center  
توريد وتركيب منظومات طاقة شمسية لمركز الوفاء الصحي

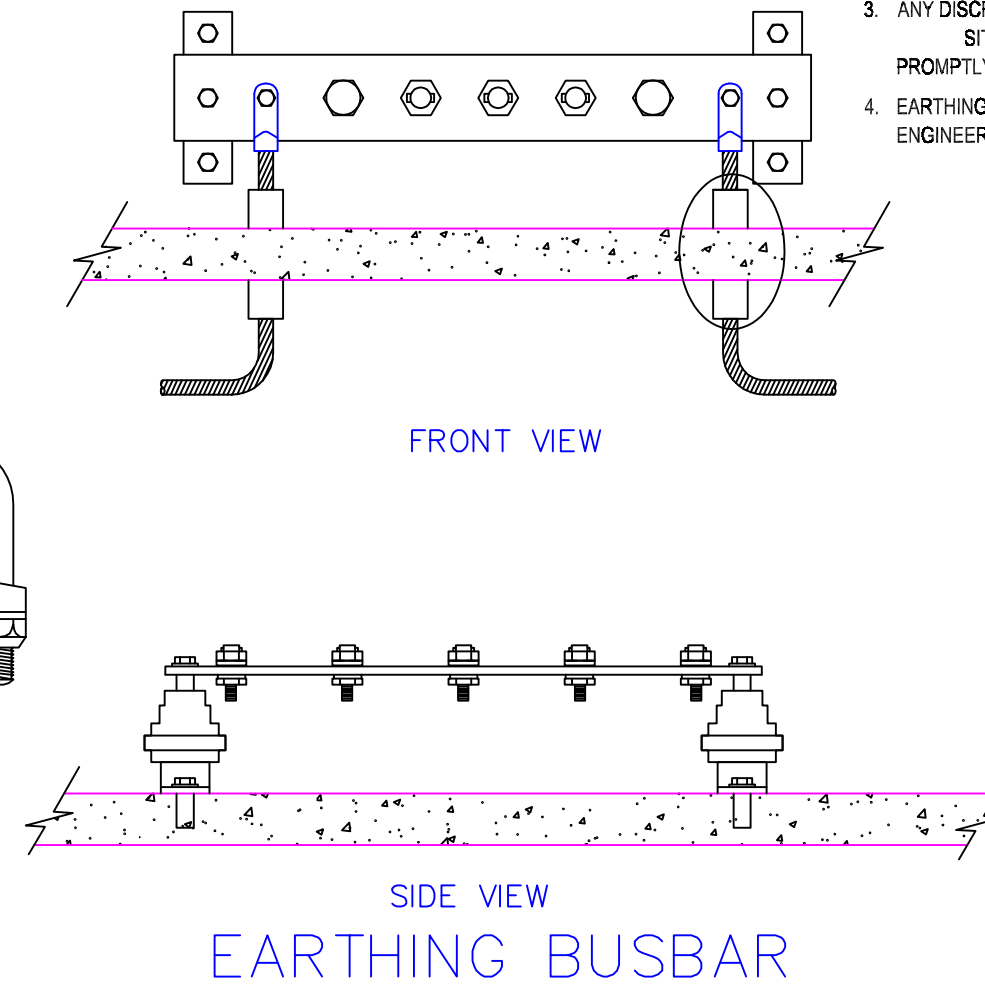
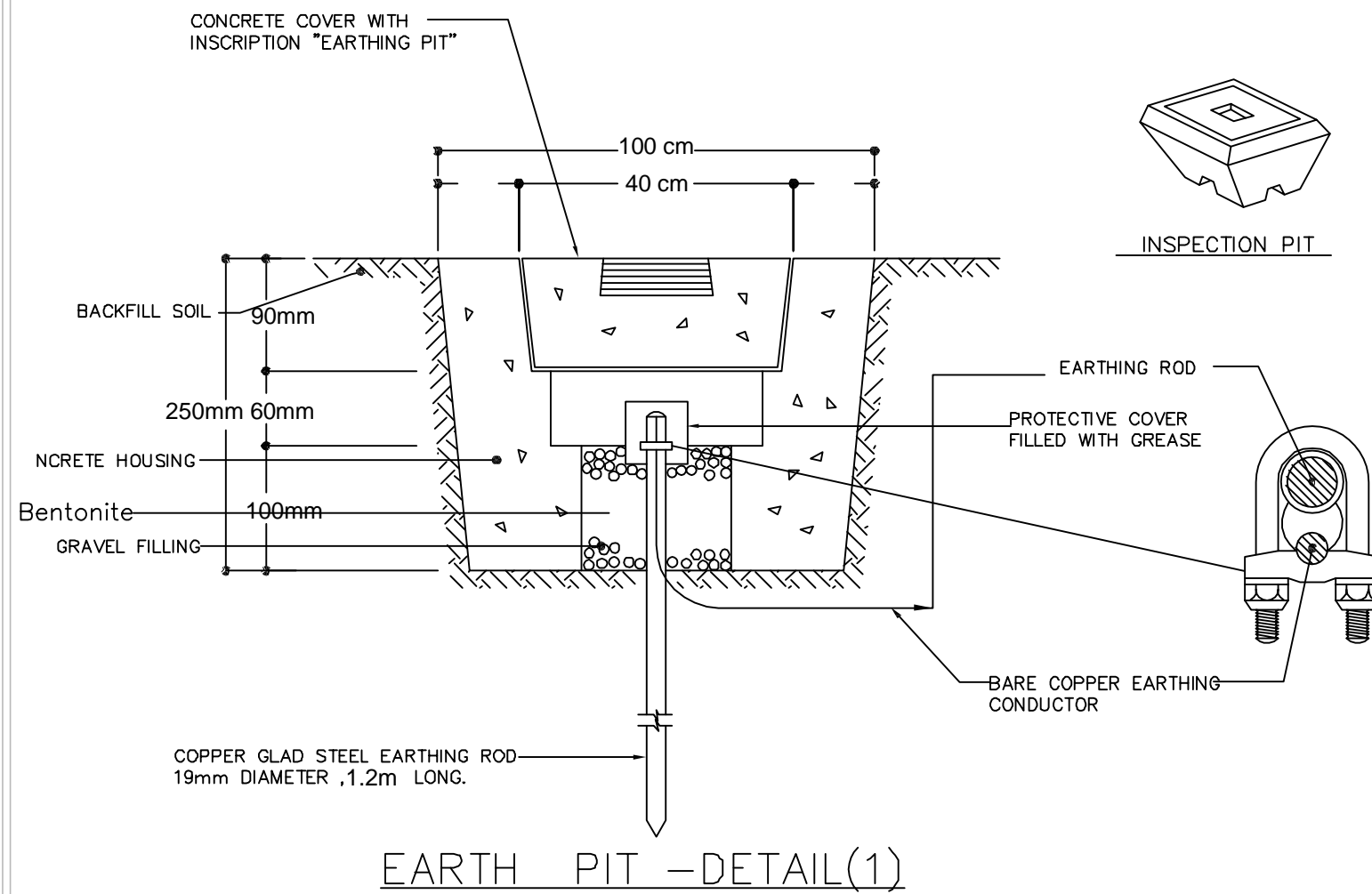
DRAWING TITLE:  
**EARTHING & LIGHTNING PLAN**

مركز الوفاء الصحي	
مسقط افقى	sheet اسم اللوحة
07	Sheet No رقم اللوحة

SCALE:  
AS SHOWN.

**REMARKS:**

1. ALL DIMENSIONS AND ELEVATIONS ARE IN CENTIMETERS AND METERS RESPECTIVELY, UNLESS OTHERWISE MENTIONED.
2. ALL DIMENSIONS TO BE CHECKED AND CONFIRMED ON SITE BEFORE COMMENCEMENT OF ANY WORK.
3. ANY DISCREPANCY TO BE REPORTED TO THE SITE ENGINEER/ PROJECT MANAGER PROMPTLY BEFORE PROCEEDING.
4. EARTHING PIT SHALL BE CARRY OUT AS BE SITE ENGINEER INSTRUCTION.



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

**DRAWING TITLE:**  
**EARTHING DETAILS**

مركز الوفاء الصحي

مسقط افقي

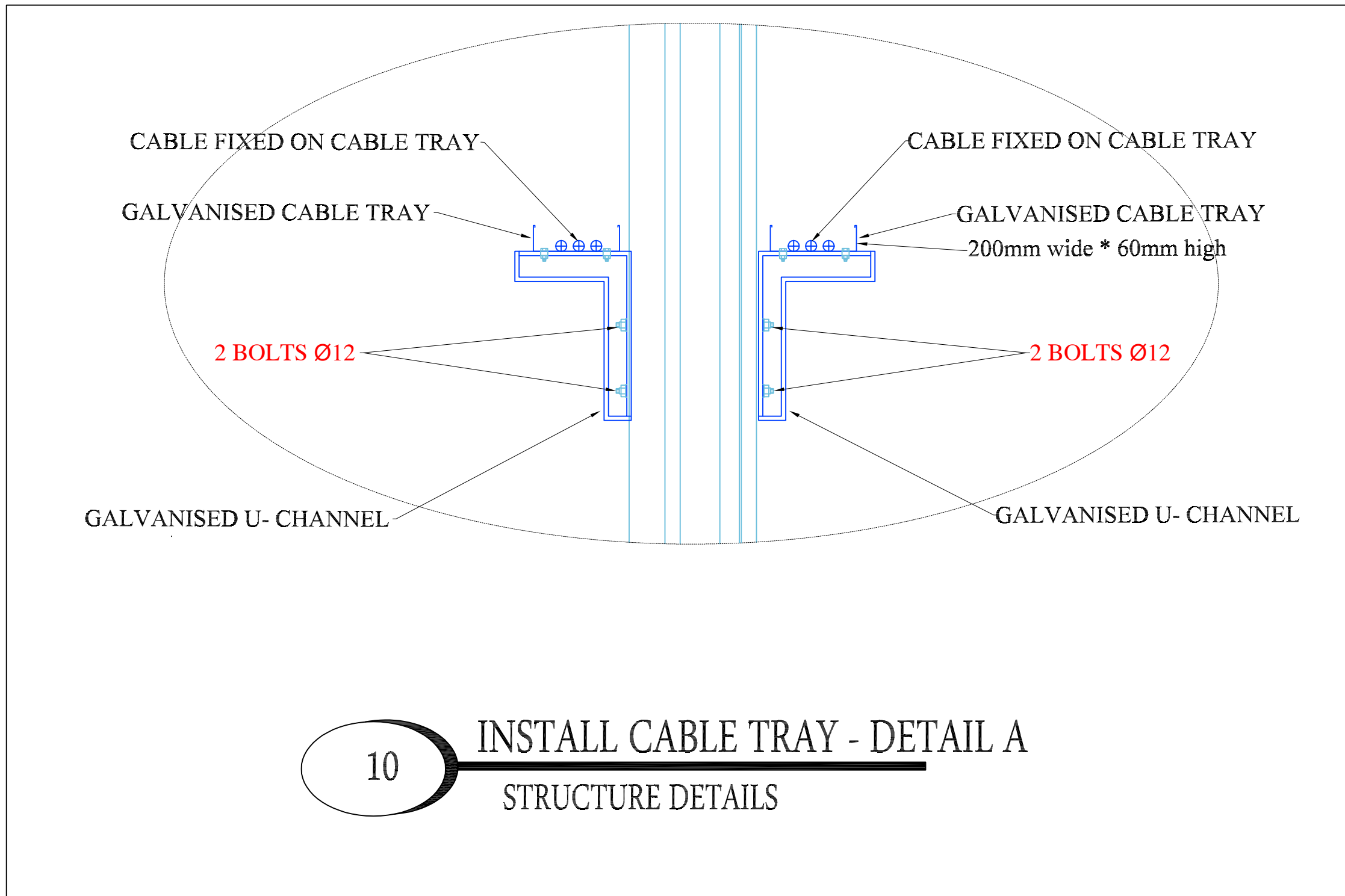
sheet  
اسم اللوحة

08

Sheet No  
رقم اللوحة

**SCALE:**  
**AS SHOWN.**





Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

DRAWING TITLE:  
**GENERAL DETAILS**

مركز الوفاء الصحي

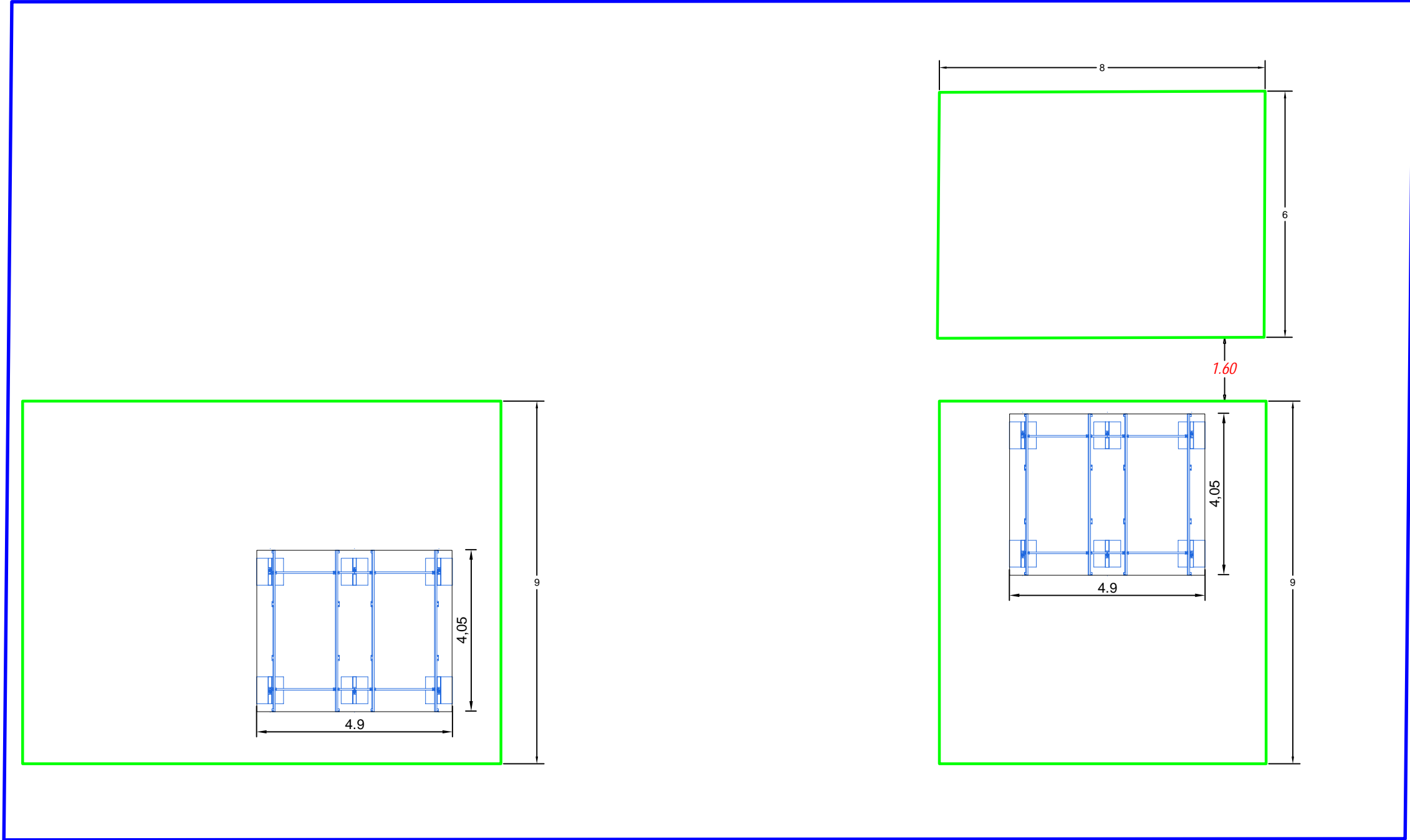
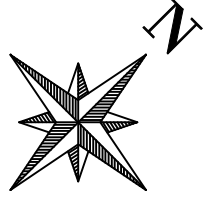
مسقط افقي

sheet  
اسم اللوحة

09

Sheet No  
رقم اللوحة

SCALE:  
AS SHOWN.



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

**DRAWING TITLE:**

**BASES DISTRIBUTION**

مركز الوفاء الصحي

مسقط افقى

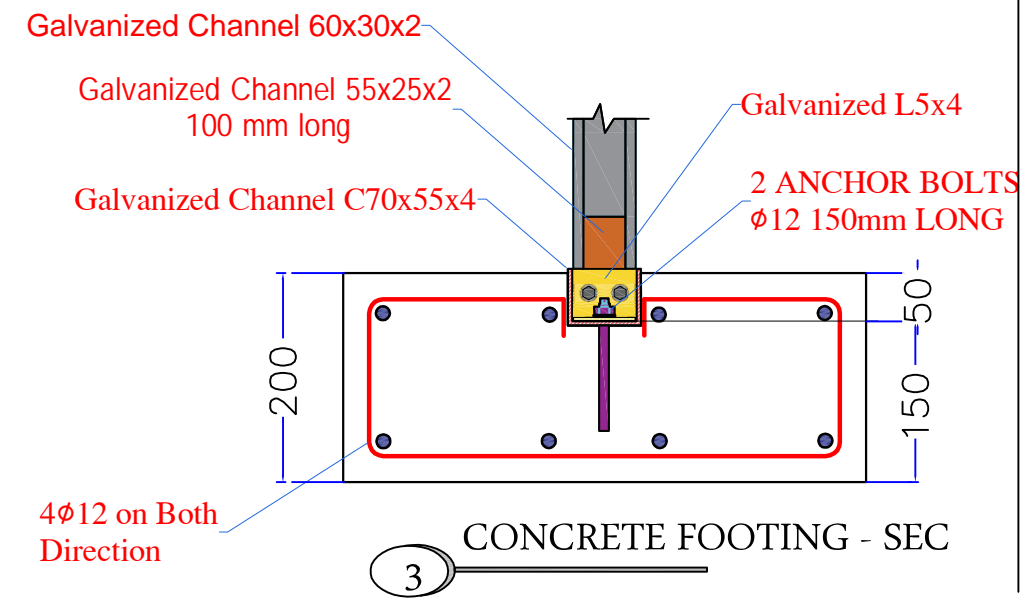
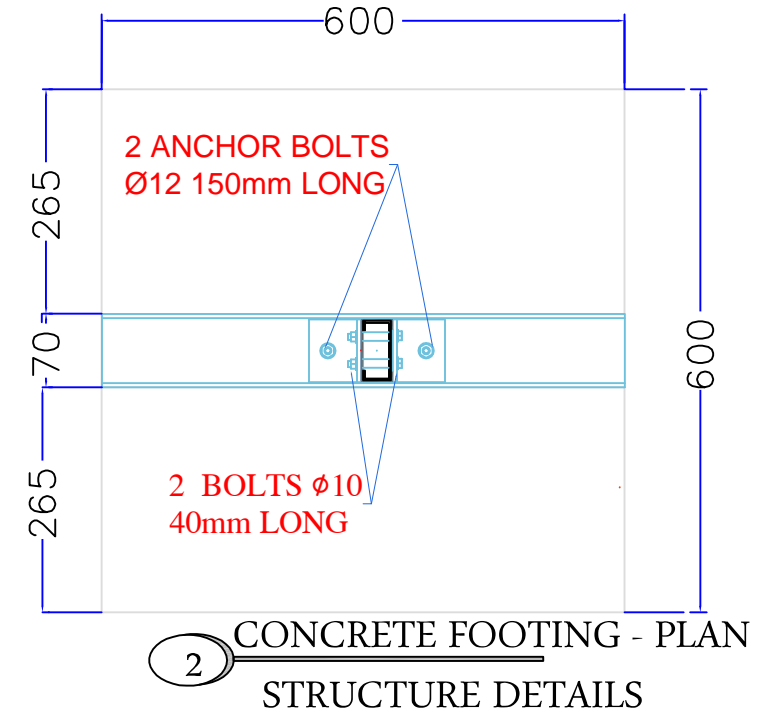
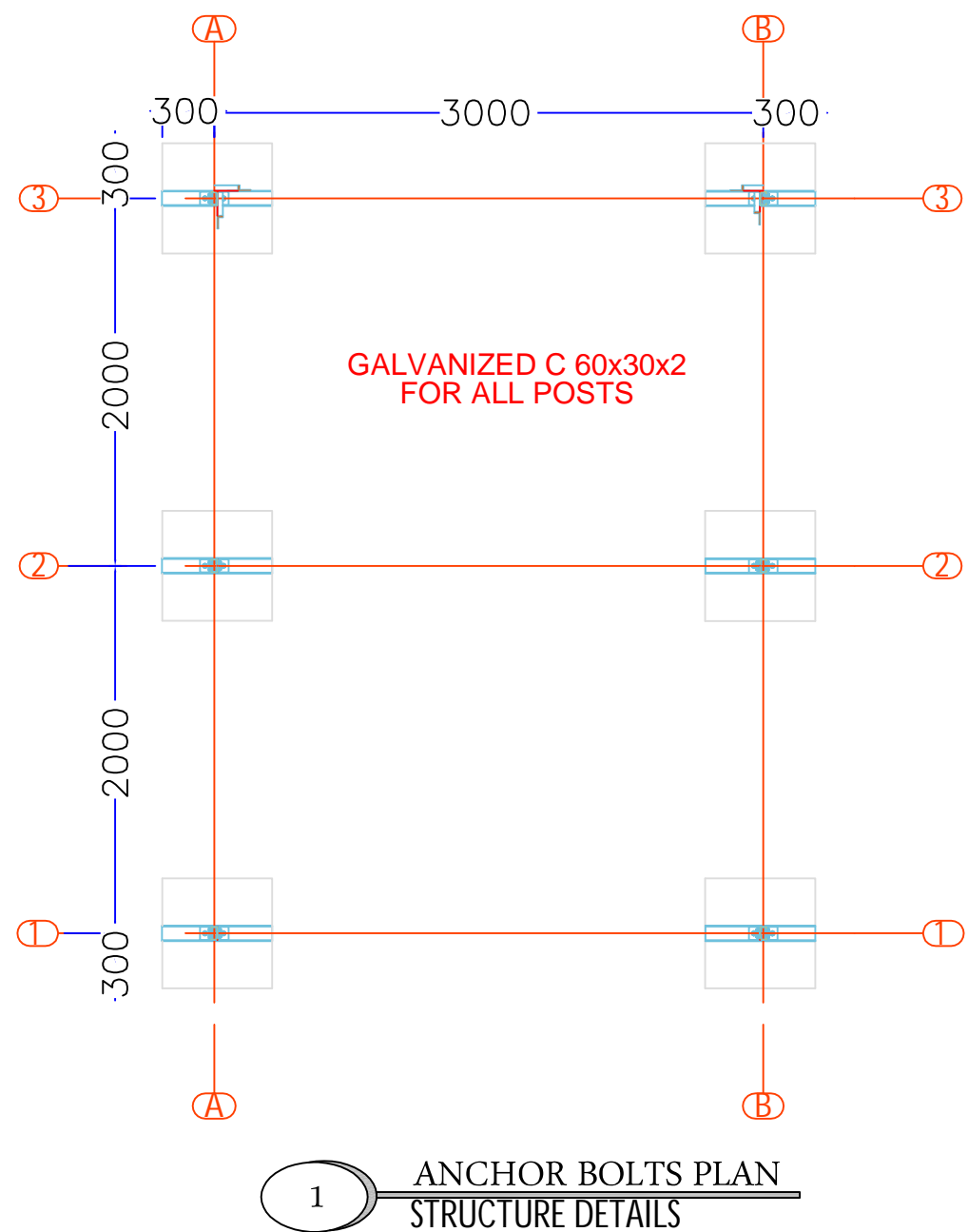
10

sheet  
اسم اللوحة

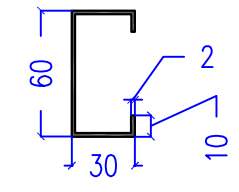
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رقم اللوحة

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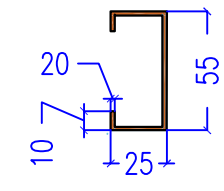
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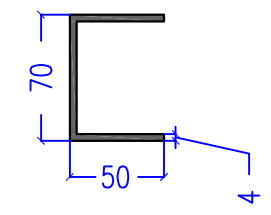
Channel C 60x30x2



Channel C 55x25x2



Channel C 70x50x4

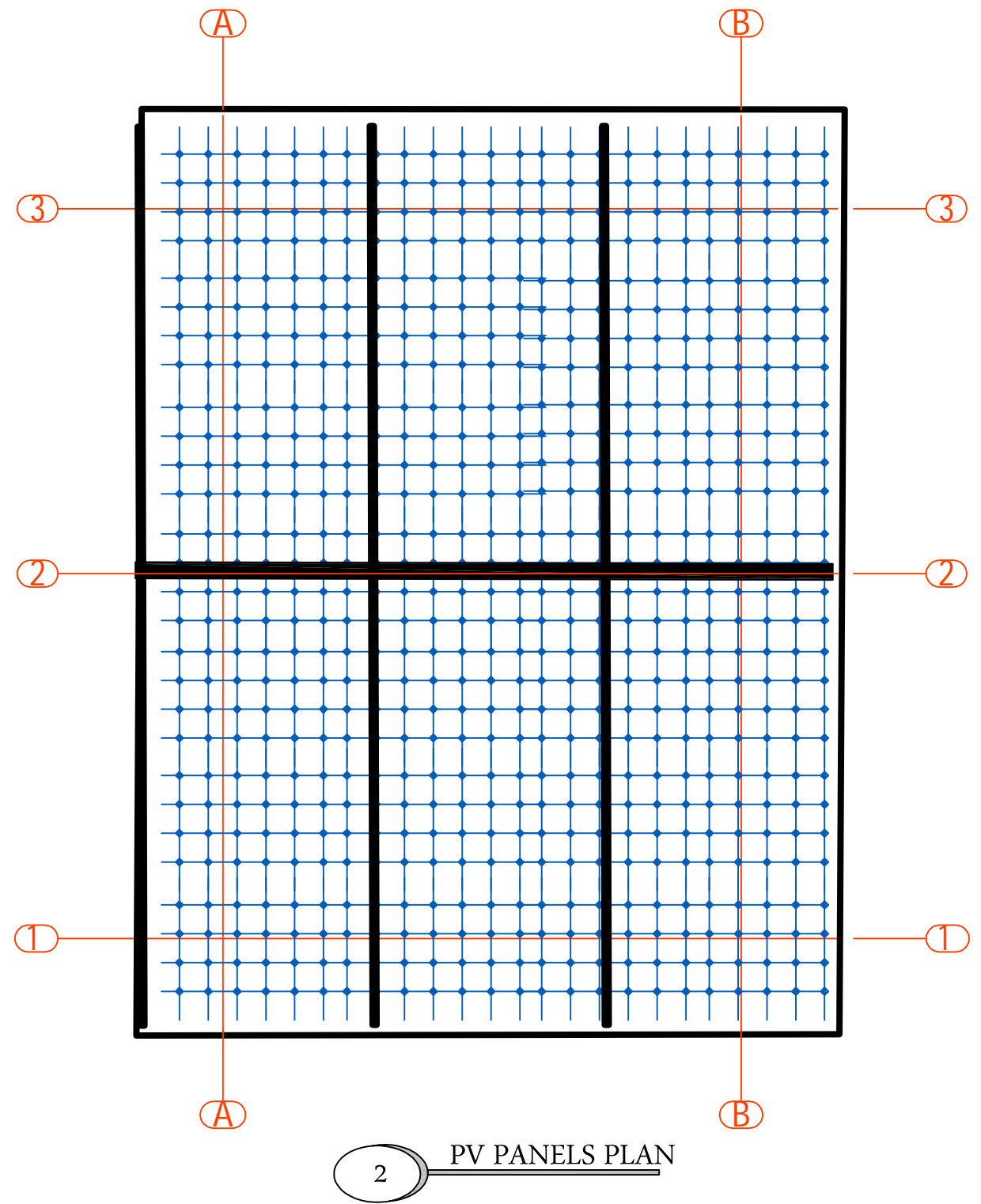
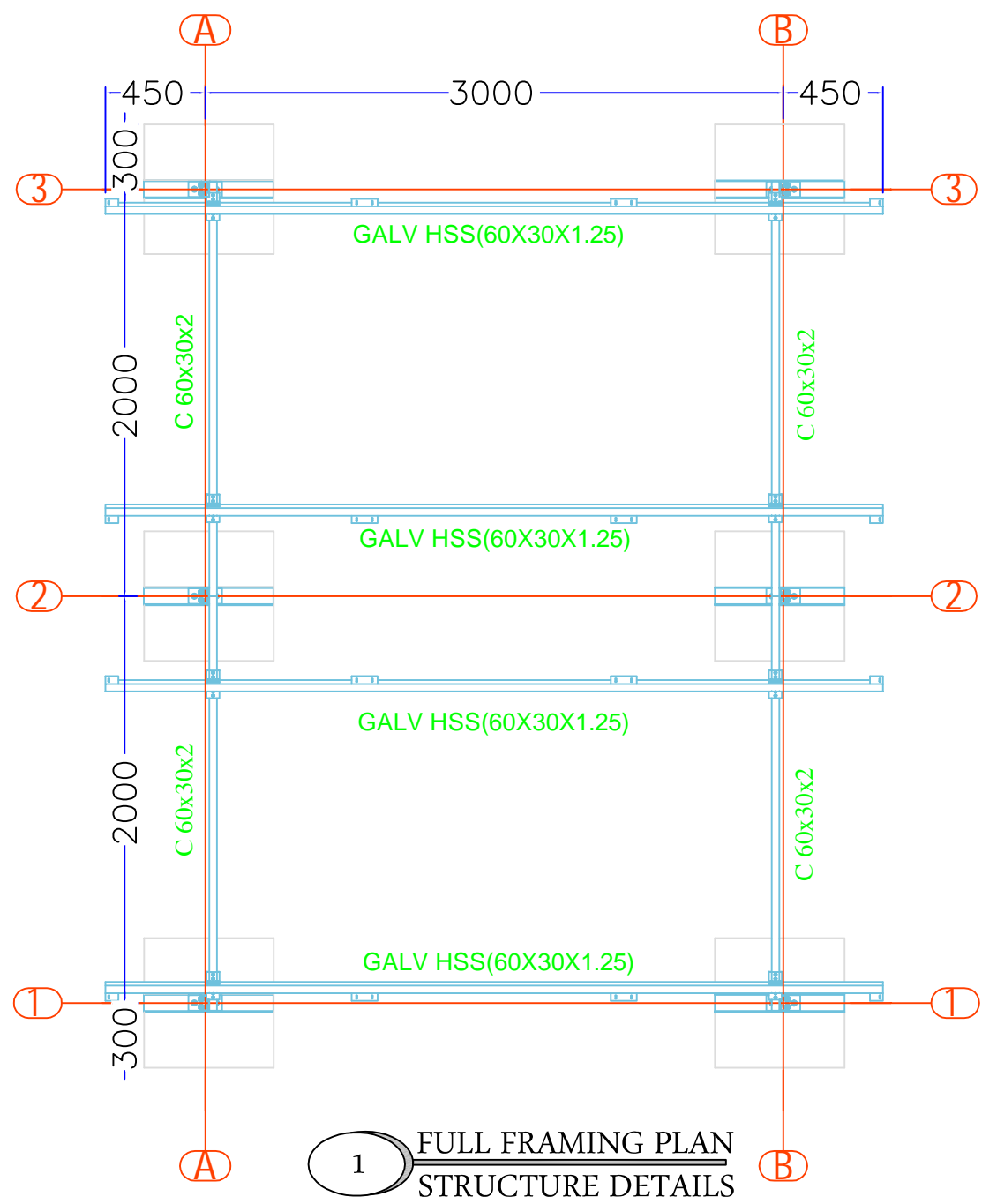


Supply & Install Solar System  
for Al-Wafaa Health Center  
توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

DRAWING TITLE:  
ANCHOR POLTS PLAN.

مركز الوفاء الصحي	
مسقط افقى	sheet اسم اللوحة
11	Sheet No رقم اللوحة

SCALE:  
AS SHOWEN.



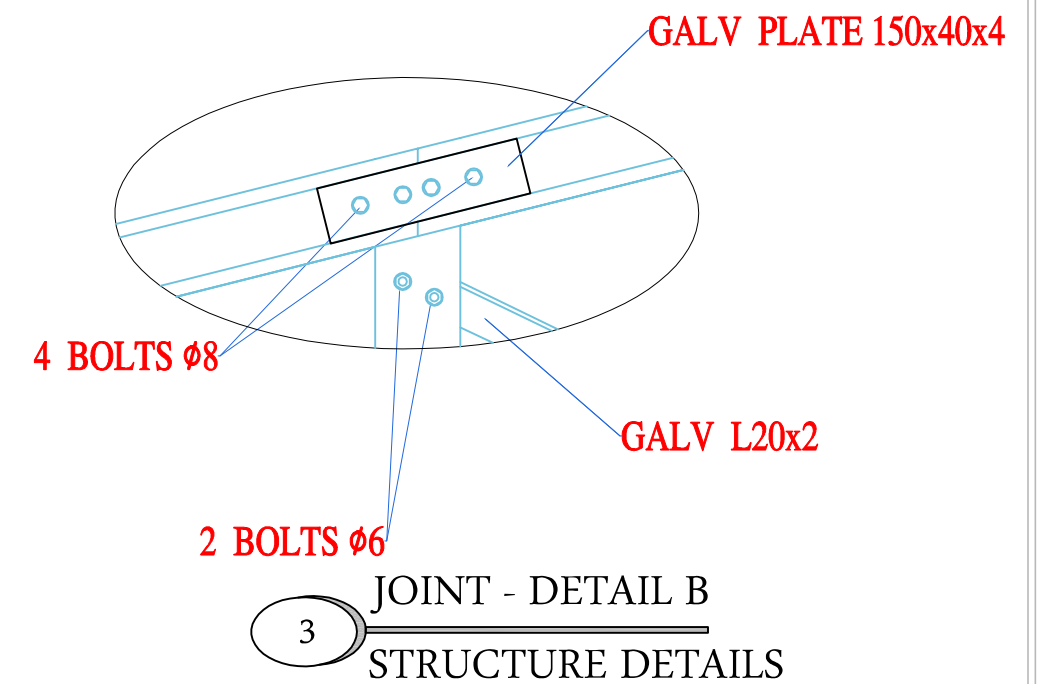
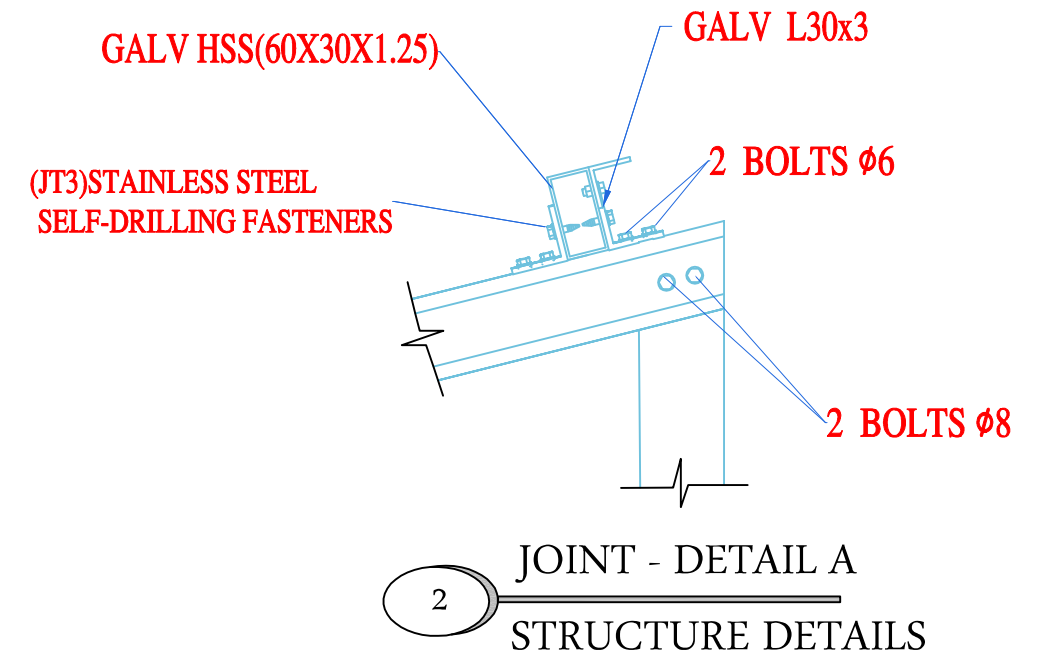
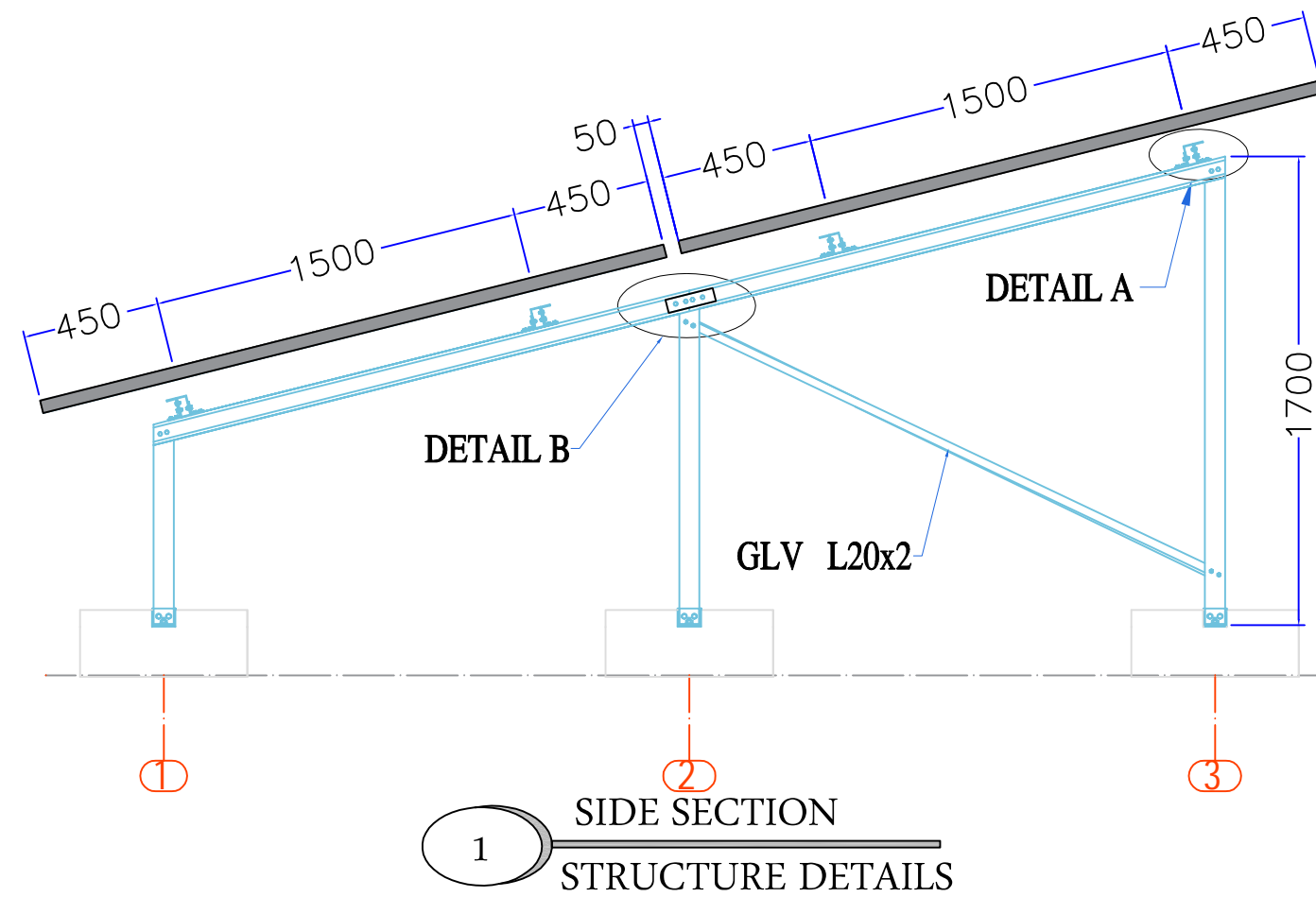
Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

DRAWING TITLE:  
**FULL PLAN**

مركز الوفاء الصحي	
مسقط افقي	sheet اسم اللوحة
12	Sheet No رقم اللوحة

SCALE:  
AS SHOWN.



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

DRAWING TITLE:

**SIDE ELEVATION**

مركز الوفاء الصحي

مسقط افقي

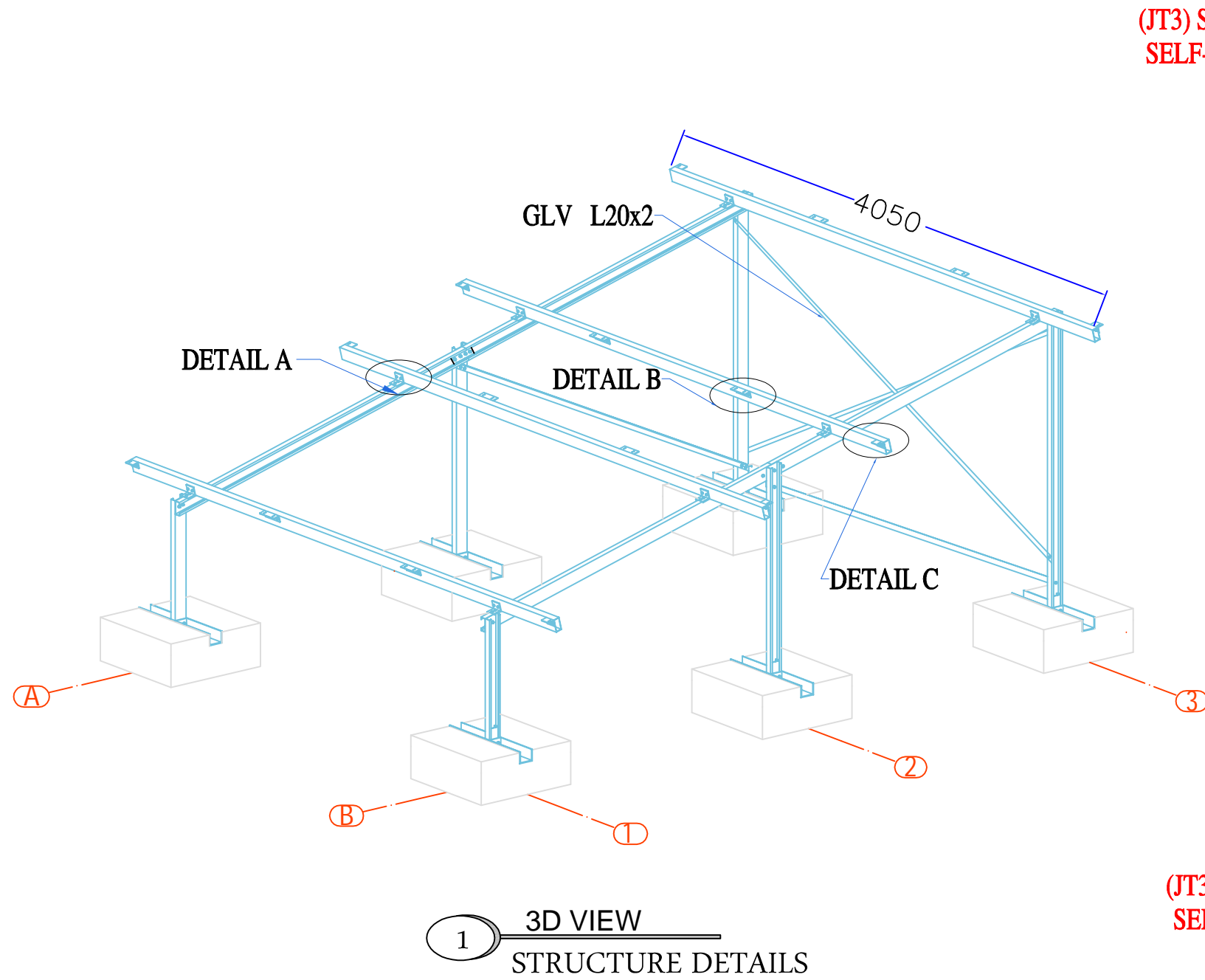
13

sheet  
اسم اللوحة

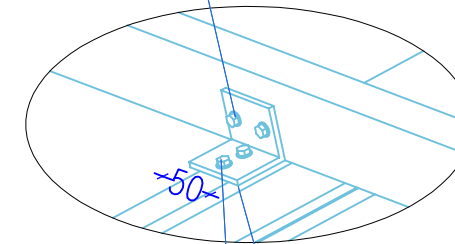
Sheet No  
رقم اللوحة

SCALE:

AS SHOWN.

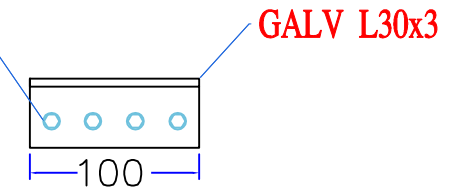


(JT3) STAINLESS STEEL  
SELF-DRILLING FASTENERS



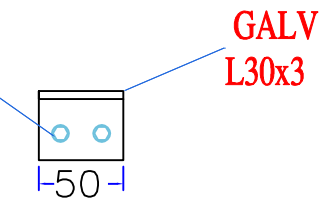
2 BOLTS  $\phi 6$  GALV L30x3  
2 JOINT - DETAIL A  
STRUCTURE DETAILS

(JT3) STAINLESS STEEL  
SELF-DRILLING FASTENERS



3 GALV L30x3  
3 JOINT - DETAIL B  
STRUCTURE DETAILS

(JT3) STAINLESS STEEL  
SELF-DRILLING FASTENERS



4 GALV L30x3  
4 JOINT - DETAIL C  
STRUCTURE DETAILS



Supply & Install Solar System  
for Al-Wafaa Health Center  
توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

DRAWING TITLE:  
3D VIEW

مركز الوفاء الصحي	sheet اسم اللوحة
مسقط افقي	Sheet No رقم اللوحة
14	

SCALE:  
AS SHOWN.

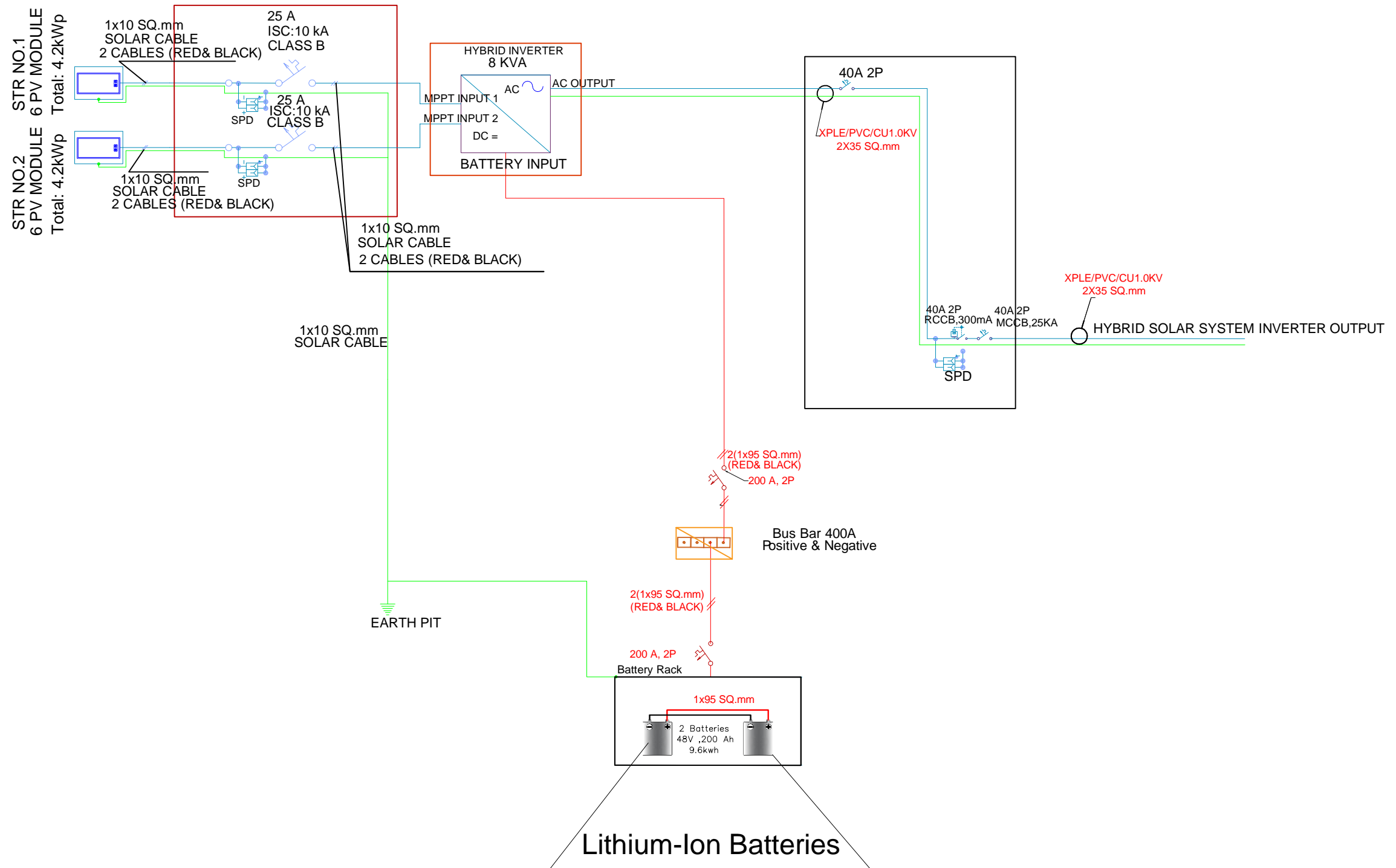
PV Module Connection

DC Circuit Breaker Box

inverter

Battery

AC Coupling



Supply & Install Solar System for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة شمسية لمركز الوفاء الصحي

**DRAWING TITLE:**  
**SOLAR SYSTEM SCHEMATIC DIAGRAM**

مركز الوفاء الصحي

مسقط افقى

15

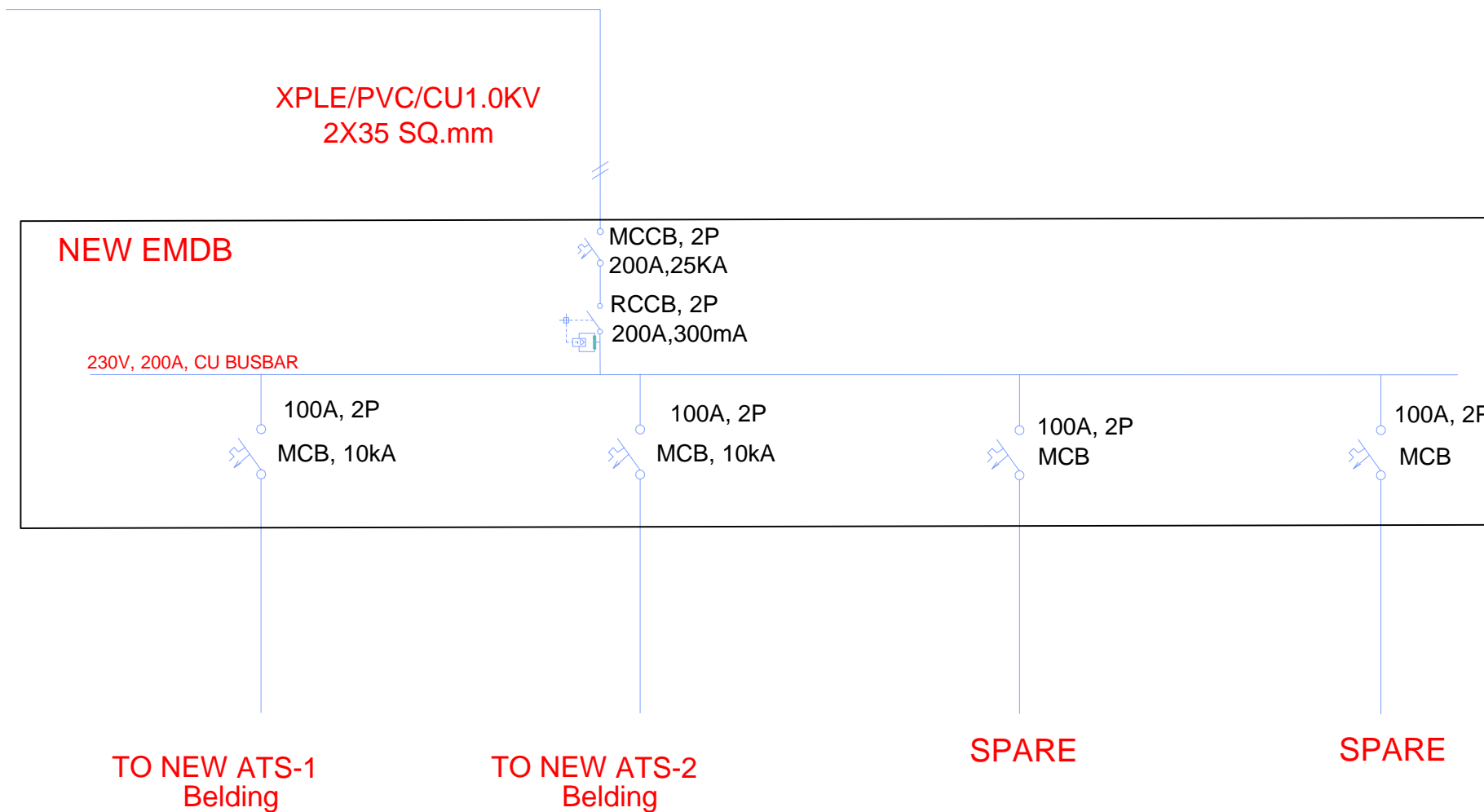
sheet  
اسم اللوحة

Sheet No  
رقم اللوحة

**SCALE:**  
**AS SHOWN.**



# HYBRID SOLAR SYSTEM INVERTER OUTPUT



## LEGEND:

SYMBOL	DESCRIPTION
	AUTOMATIC TRANSFER SWITCH
	SURGE ARRESTER
	CIRCUIT BREAKER (MCCB/MCB)
	CIRCUIT BREAKER (RCB)
	AC FUSE



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

**DRAWING TITLE:**  
**NEW EMDB SINGLE  
LINE DIAGRAM**

مركز الوفاء الصحي

مسقط افقي

sheet  
اسم اللوحة

16

Sheet No  
رقم اللوحة

**SCALE:**

AS SHOWN.

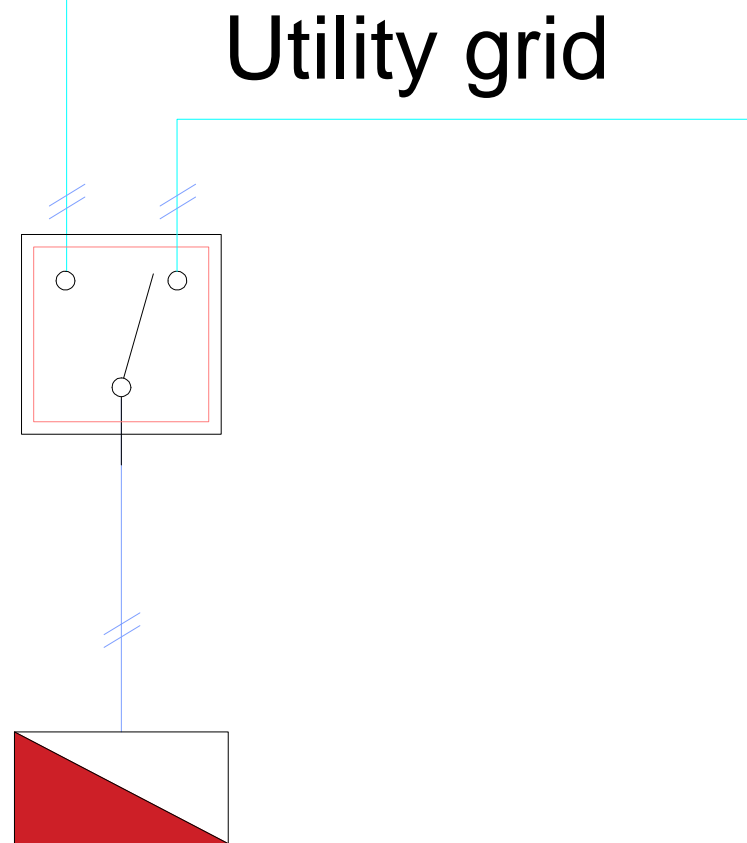


# From EMDB Insid Battery Room

**XPLE/PVC/CU1.0KV  
2X35 SQ.mm**

**ATS-1,2 /100A**

**XPLE/PVC/CU1.0KV  
2X35 SQ.mm**



**Utility grid**

**OLD S-DB1 ,S-DB2  
In the first and second buildings**

**LEGEND:**

SYMBOL	DESCRIPTION
	AUTOMATIC TRANSFER SWITCH
	SURGE ARRESTER
	CIRCUIT BREAKER (MCCB/MCB)
	CIRCUIT BREAKER (RCB)
	AC FUSE



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

**DRAWING TITLE:  
OLD S-DB NEW  
CONNECTION DIAGRAM**

مركز الوفاء الصحي

مسقط افقي

sheet  
اسم اللوحة

17

Sheet No  
رقم اللوحة

**SCALE:  
AS SHOWN.**

**MAIN REMARKS: -**

1. THE LAYOUT DRAWINGS DO NOT SHOW ALL THE SYSTEMS, ITEMS, OR ACCESSORIES COVERED UNDER THE SCOPE OF ELECTRICAL WORKS TO BE EXECUTED THE LAYOUT DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT OR SPECIALIST DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE FROM THE LAYOUT DRAWINGS WORK ACCORDING TO ARCHITECTURAL OR ELECTRICAL DETAILS UNLESS OTHERWISE AUTHORIZED.
3. ALL EQUIPMENT LAYOUTS ARE PROVISIONAL. FINAL LAYOUT SHALL BE DETERMINED BY THE CONTRACTOR FROM THE CONSTRUCTION/SHOP DRAWINGS AND AFTER COORDINATION WITH OTHER TRADES.
4. THE SIZE OF CONDUITS AND/OR CABLE TRAYS IS IN GENERAL NOT SHOWN ON DRAWINGS. THE SIZE OF ALL CONDUITS AND/OR CABLE TRAYS SHALL BE SELECTED BY THE CONTRACTOR IN ACCORDANCE WITH BOQ, REGULATIONS AND/OR STANDARDS AND WILL BE FUNCTION OF THE NUMBER AND SIZE OF THE RESPECTIVE CONDUCTORS.
5. PERFORATED CABLE TRAY SHALL BE FIXED AND COVER PROPERLY AND SHALL NOT FIXED DIRECT TO ROOF SLAB.
6. EARTH CONTINUITY CONDUCTORS ARE NOT INDICATED ON THE DRAWINGS, BUT SHALL BE RUN WITH ALL CIRCUITS IN ACCORDANCE WITH SPECIFICATIONS, REGULATIONS AND/OR STANDARDS.
7. THE COLOR CODE FOR A FOUR WIRE CIRCUIT IS - ONE BLACK, - ONE RED, ONE BLUE AND ONE YELLOW ANY CONDUCTOR INTENDED FOR GROUNDING PURPOSE SHALL BE GREEN WITH YELLOW STRIPE.
8. IN THE ABSENCE OF ANY INDICATION ON THE DRAWINGS OR THE SPECIFICATIONS, THE INSTALLATIONS SHALL BE DONE TO THE SATISFACTION OF GWQ ENGINEER.
9. FOR EXACT QUANTITY, TYPE & LOCATION OF ELECTRICAL OUTLETS REFER TO INTERIOR DESIGN DOCUMENT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING THE NO. OF CIRCUIT BREAKERS, RATING, AND WIRING ACCORDING TO MANUFACTURER DATA WITHOUT ANY EXTRA COST.
11. UNLESS OTHERWISE INDICATED MINIMUM SIZE CONDUIT;  
- FOR EXTERIOR INSTALLATION IS 25 MM  
DIAMETER OR AS SHOWN IN PANEL SCHEDULE.
12. CONTRACTOR SHALL PROVIDE MATCHING PLUG IN FOR ALL SPECIAL OUTLETS.
13. FOR GROUND-FAULT CIRCUIT INTERRUPT (GFCI) REFER TO PLANS AND PANEL SCHEDULES.
14. THE MINIMUM SEPARATE DISTANCE BETWEEN LOW CURRENT SYSTEMS & LOW VOLTAGE POWER CABLES IS 300MM.
15. THE MAXIMUM FILLING RATIO FOR POWER & COMMUNICATION CONDUITS IN SITE WORK ARE:  
- MIN. 50MMD FOR POWER CABLE WITH MAX. 40% OF CONDUIT CAPACITY.  
- MIN. 50MMD FOR LOW CURRENT SYSTEMS WITH MAX. 40% OF CONDUIT CAPACITY.
16. ALL C.BS WITH FRAME RATING LARGER THAN 100A SHOULD HAVE ADJUSTABLE THERMAL OVERLOAD SETTING.
17. THE DISTANCE BETWEEN EARTH PIT SHALL BE DOUBLE OR MORE THAN LENGTH OF EARTHING ROD.
18. THE CONTRACTOR SHOULD PROVIDE COMPLETE CENTRAL INTERFACE BETWEEN THE SOLAR GENERATION SYSTEM & GENERATOR SET.



Supply & Install Solar System  
for Al-Wafaa Health Center

توريد وتركيب منظومات طاقة  
شمسية لمركز الوفاء الصحي

**DRAWING TITLE:**  
**MAIN LOCATION**

مركز الوفاء الصحي

مسقط افقى

sheet  
اسم اللوحة

18

Sheet No  
رقم اللوحة

**SCALE:**

AS SHOWN.

GENERAL

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL, ELECTRICAL, MECHANICAL, OTHER CONTRACT DRAWINGS, SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT FOR DECISION BEFORE PROCEEDING WITH THE WORK.

G2. DIMENSIONS ARE AS SHOWN. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.

G3. SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR.

G4. DURING CONSTRUCTION THE STRUCTURE WILL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED.

G5. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STATED CODES AND THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES.

G6. THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED

FOR THE FOLLOWING LOAD

- MINIMUM LIVE LOADS.
- WIND LOAD 120KM/HOUR.
- SELF WEIGHT.

G7. REFER TO STRUCTURAL DRAWINGS FOR THE DIFFERENT CONSTRUCTION MATERIALS TO BE USED IN THE PROJECT.

STRUCTURE

S1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATION AND FOLLOWING CODES

- AISC-13.
- ACI 318M -2014.
- ASCE 7-10.
- ASTM.

S2. COLD-FORMED GALVANIZED STEEL QUALITY: - THE A36FY36 MATERIAL WAS SELECTED FOR ALL COLUMNS, BEAMS, PURLINS AND BRACING AND SECTIONS. MINIMUM YEILD STRENGTH (FY=240 MPA).

S3. ESTABLISH ANY HOLES OR CUTTING WORK SHOULD BE BY USING POWER ELECTRICAL EQUIPMENT.

S4. THE STEEL IS TREATED IDEALLY SO THAT DON'T SCRATCH OF THE TOP LAYER OF STEEL

S5. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER. IF ANY.

S6. ALL BOLTS ARE A325 OR A490 HIGH STRENGTH BOLTS (HARDNESS EQUAL 8.8). AS AISC.

CONCRETE

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATION AND AMERICAN CONCRETE CODE ACI-318M-2014 (REINFORCED CONCRETE STRUCTURES).

C2. CONCRETE QUALITY (CONCRETE WITH EPOXY GROUT): - MINIMUM CONCRETE CUBE STRENGTH (F'C=50 MPA) AFTER 28 DAYS

C3. CONCRETE WITH EPOXY GROUT MUST BE MIXED BY AN ELECTRIC DRILL.

C4. CONCRETE BASES ARE SPRAYED FOR AT LEAST 5 DAYS THREE TIMES A DAY



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شمسية لمركز الوفاء الصحي

DRAWING TITLE:

**MAIN NOTES**

مركز الوفاء الصحي

مسقط افقى

19

sheet  
اسم اللوحة














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












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## REMARKS:

- 1 ALL DIMENSIONS AND ELEVATIONS ARE IN CENTIMETERS AND METERS RESPECTIVELY, UNLESS OTHERWISE MENTIONED.
- 2 ALL DIMENSIONS TO BE CHECKED AND CONFIRMED ON SITE BEFORE COMMENCEMENT OF ANY WORK.
- 3 ANY DISCREPANCY TO BE REPORTED TO THE GWQ SITE ENGINEER/ PROJECT MANAGER PROMPTLY BEFORE PROCEEDING.
- 4 ALL OUTDOOR OUTLETS, SOCKET OR WIRING ACCESSORIES SHALL BE WEATHER PROOF TYPE.
- 5 ALL DISTANCE BETWEEN SYSTEM COMPONENTS INSIDE BATTERY ROOM TO BE DISTRIBUTED AS PER MANUFACTURE INSTALLATION INSTRUCTION.

SOLER STSTEM	
SYMBOL	DESCRIPTION
	PHOTOVOLTAIC MODULE
	HYBRID INVERTER
	AUTOMATIC TRANSFER SWITCH
	MPPT BATTERY CHARGER
	BUS BAR BOX
	SURGE ARRESTER
	CIRCUIT BREAKER (MCB)
	CIRCUIT BREAKER (RCBO)
	DC FUSE
	POSITIVE & NEGATIVE COLLECTION BOX
	COMBINER BOX
	MAIN DISTRIBUTION BOARD
	AC DISTRIBUTION BOARD FOR HEAVY LOAD

SOLER STSTEM	
SYMBOL	DESCRIPTION
	EARTHING BUS BAR
	EARTHING CABLE
	BATTERY RACK.
	LIGHTNING ARRESTER
	GALVANIZED CABLE TRAY
	EXHAUST FAN
	BATTERY SMOKE & HEAT DETECTOR
	FIRE EXTINGUISHER
	SOLAR SINGLE CORE CABLE 1C X 10 SQ.MM (RED COLOR)
	SOLAR SINGLE CORE CABLE 1C X 10 SQ.MM (BLACK COLOR)
	SOLAR SINGLE CORE CABLE 1C X 35SQ.MM (RED COLOR)
	SOLAR SINGLE CORE CABLE 1C X 35SQ.MM (BLACK COLOR)
	WALL MOUNTED STREET LIGHT FIXTURE



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شمسية لمركز الوفاء الصحي

DRAWING TITLE:  
**LEGENDS**

مركز الوفاء الصحي

مسقط افقي

sheet  
اسم اللوحة

17

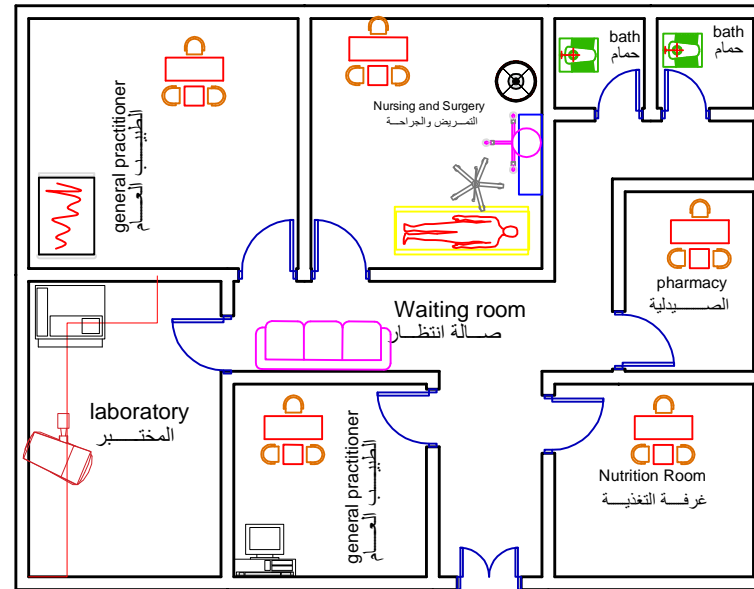
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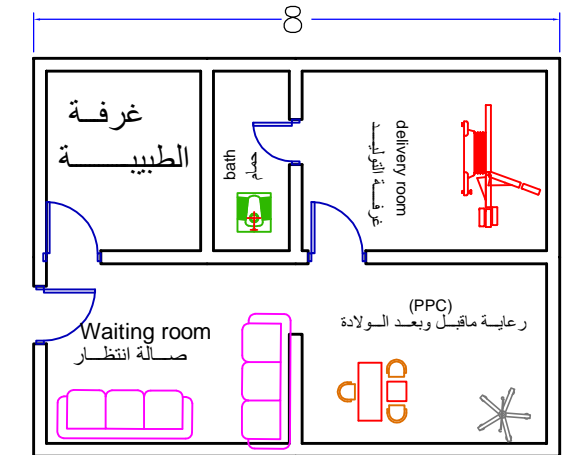
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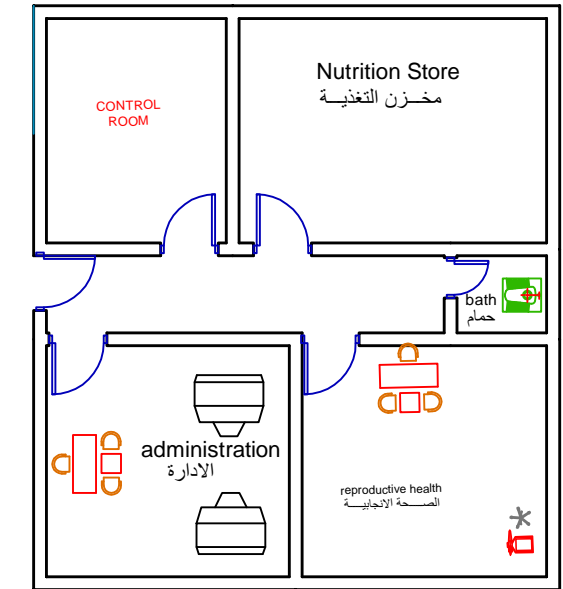
Equipment	
symbol	Description
	Steel Chairs Visitor
	Ultrasound System ,Diagnostic Machine
	Biological microscope
	Centrifuge Tabletop
	Shaker Machine
	Digital Glucometer
	Semi Automated Biochemistry Analyzer
	Desktop PC & Printer
	Sphygmomanometer mercury stand type
	CBC
	ECG machine 6 channels
	Dental Extraction Set
	I.V. stand
	Nebulizer
	Suction machine 10L



Building 2



Building 3



Building 1



Supply & Install Solar System  
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شمسية لمركز الوفاء الصحي

DRAWING TITLE:

Equipment and  
furniture

مركز الوفاء الصحي

مسقط افقي

20

sheet  
اسم اللوحة

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رقم اللوحة

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