

SUPPLY AND INSTALLATION OF ROOF-TOP SOLAR PHOTOVOLTAIC SYSTEMS ON SCHOOLS IN GAZA STRIP

Tender Ref.: PZA1203211-10026

LOT 2 SCHOOLS

ABU ZAR EL GEFARI SCHOOL, KHALIL ELNOBANI HIGH SCHOOL,
MOHAMMED EL NAGAR HIGH SCHOOL, EL MOTANABI HIGH SCHOOL,
OM EL FAHEM HIGH SCHOOL

Contracting Authority:



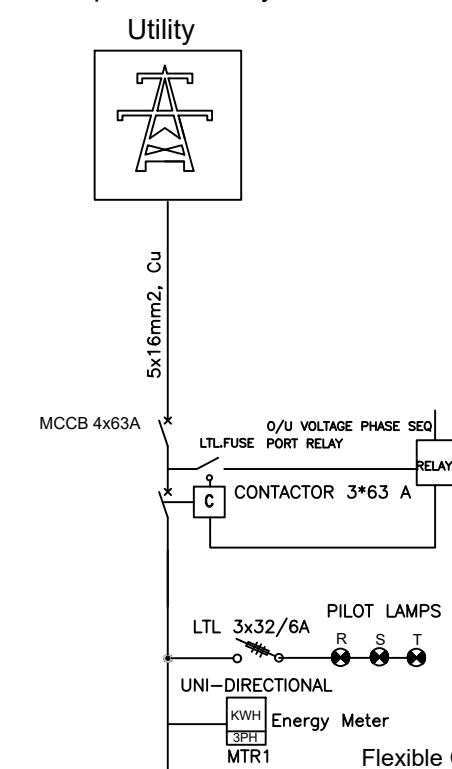
Designed by:



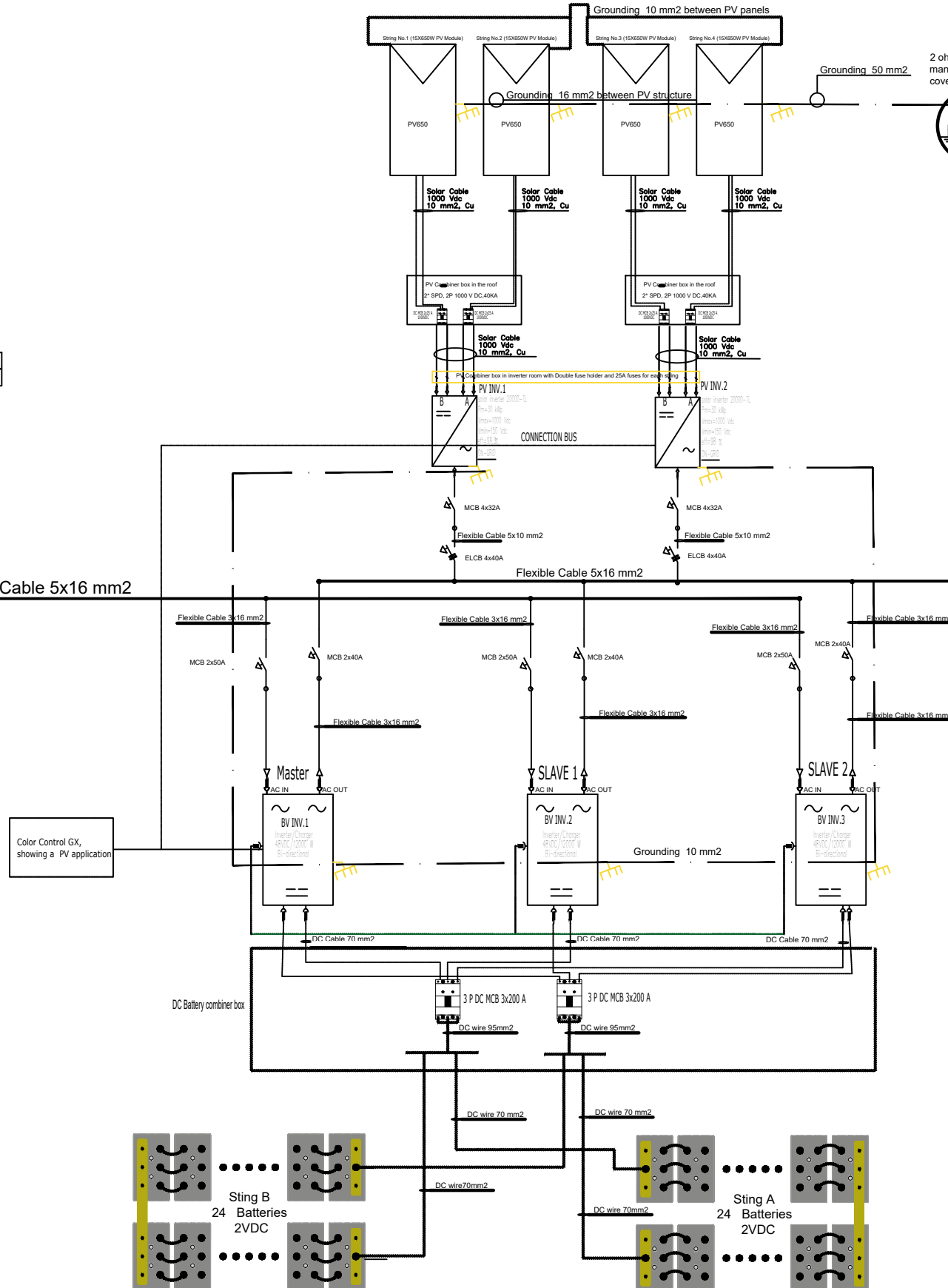
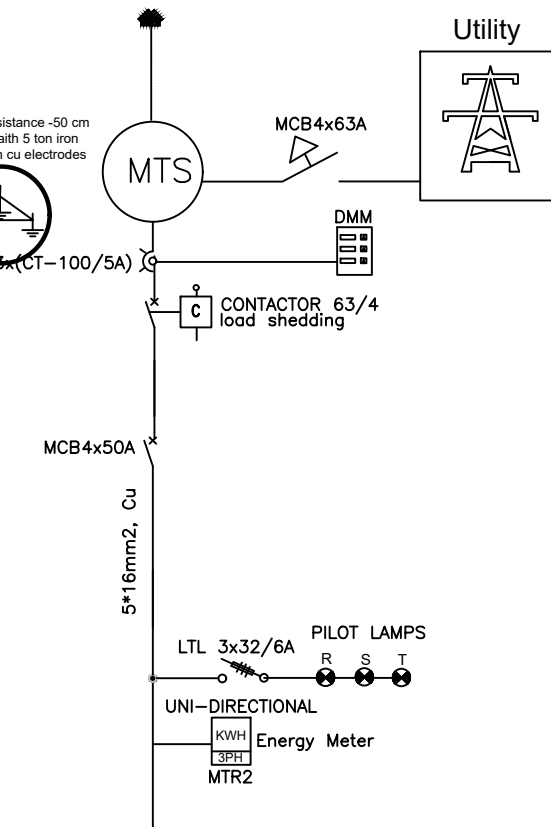
**Ministry of
Education**

MAY 2023

AC -input TO Battery inverter



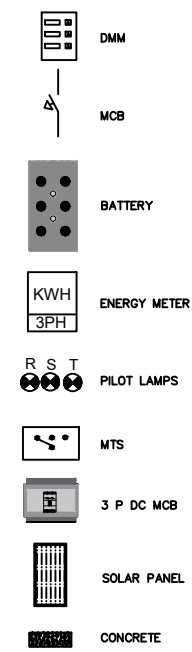
AC -OUT TO Load



Notes

- (1) All Dimensions Are In Cm.
- (2) All Levels Are In Meter
- (3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:



REVISIONS

NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:



Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

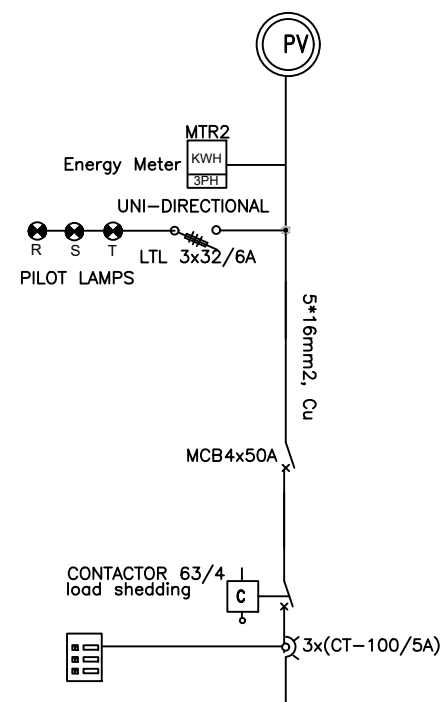
Tender No.: PZA1203211-10026

Designed by:

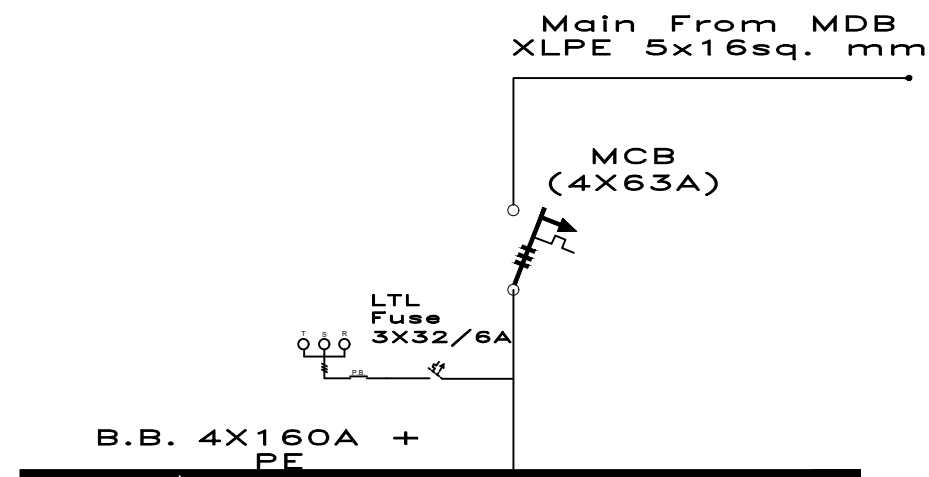


Location: Gaza
Email: info@mohe.ps
Tel: 08-2641260
Fax: 08-2641292

Drawing Title	OVERALL SYSTEM SINGLE LINE DIAGRAM	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	E01
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	

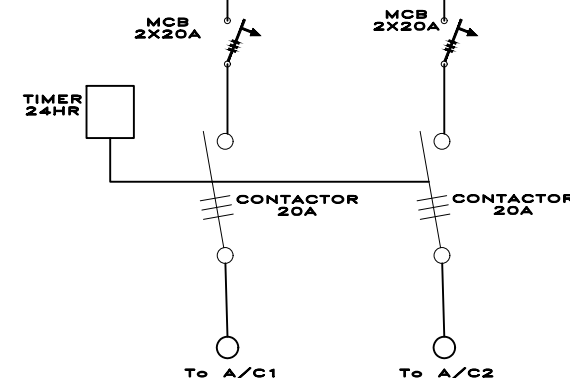


5*16mm2, Cu

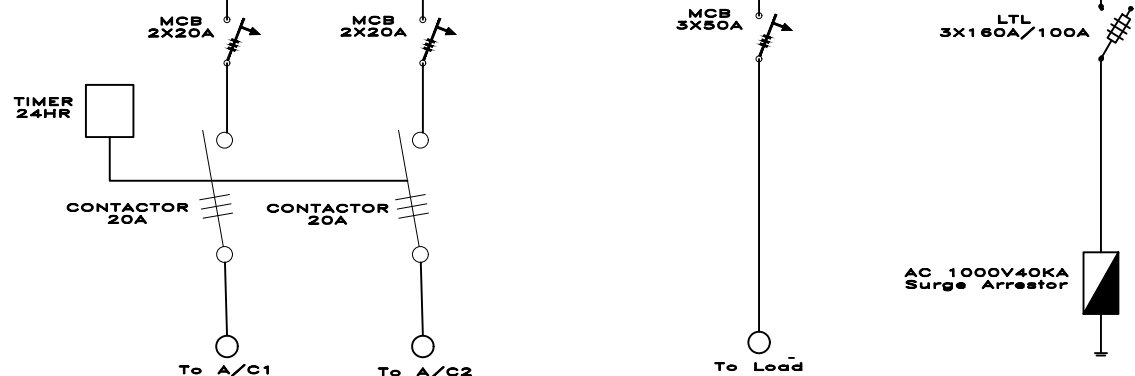


MCCB (4X63A)

5*16mm2, Cu

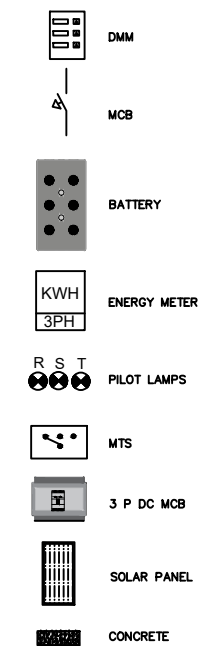


B.B. 4X160A + PE



- Notes
- (1) All Dimensions Are In Cm.
 - (2) All Levels Are In Meter
 - (3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:



REVISIONS		
NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:
SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:



Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

Tender No.: PZA1203211-10026

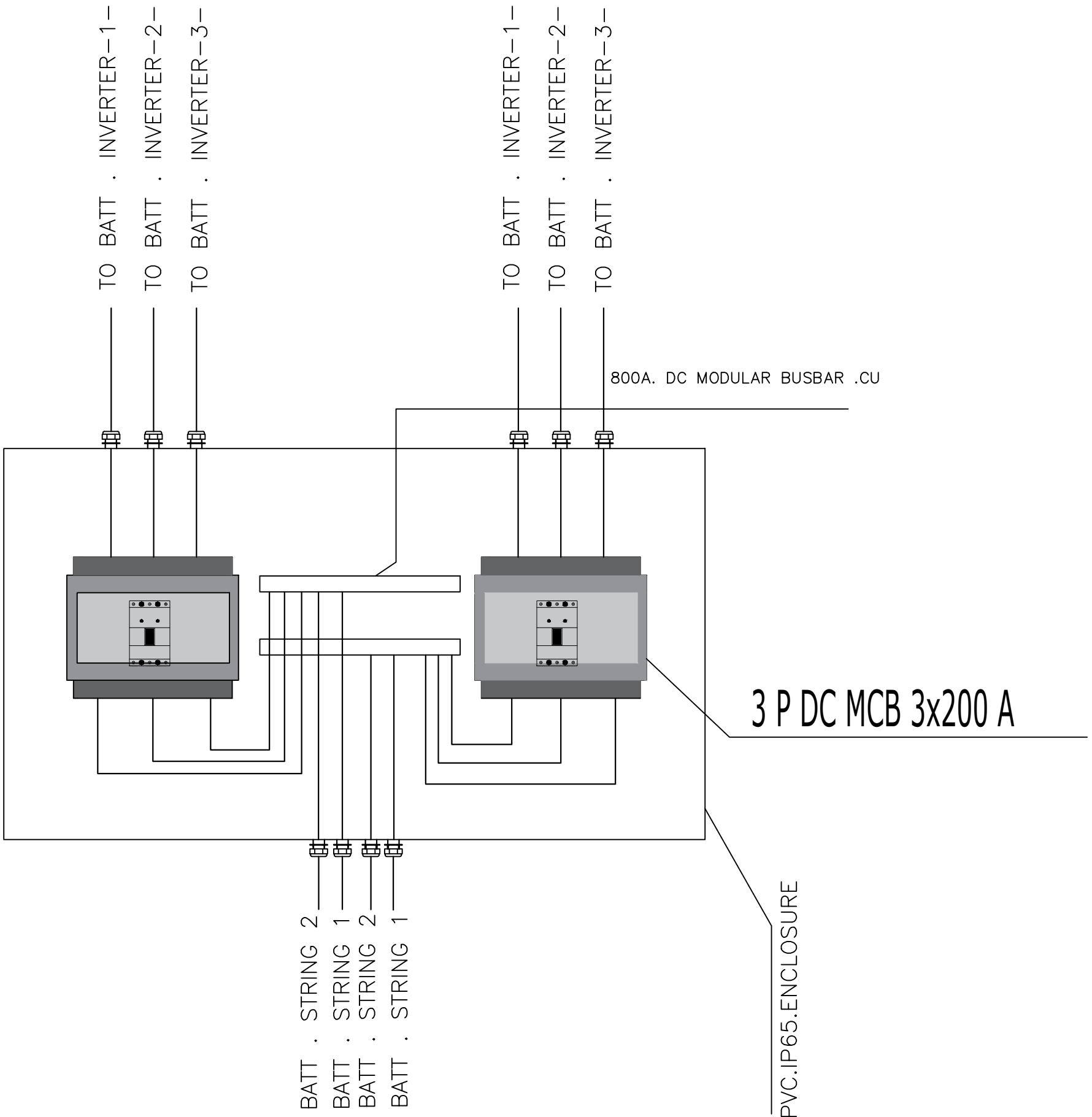
Designed by:



Location: Gaza
Email: info@mohe.ps
Tel: 08-2641260
Fax: 08-2641292

Drawing Title	MTS SYSTEM AND CONDITIONS CONTROL SYSTEM - SINGLE LINE DIAGRAM	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	E03
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	

BATTERY BOX



- Notes
- (1) All Dimensions Are In Cm.
 - (2) All Levels Are In Meter
 - (3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:

- DMM
- MCB
- BATTERY
- KWH 3PH ENERGY METER
- R S T PILOT LAMPS
- MTS
- 3 P DC MCB
- SOLAR PANEL
- CONCRETE

REVISIONS		
NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF ROOF-TOP SOLAR PHOTOVOLTAIC SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:

Belgium
partner in development

Contracting Authority:

Enabel

Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

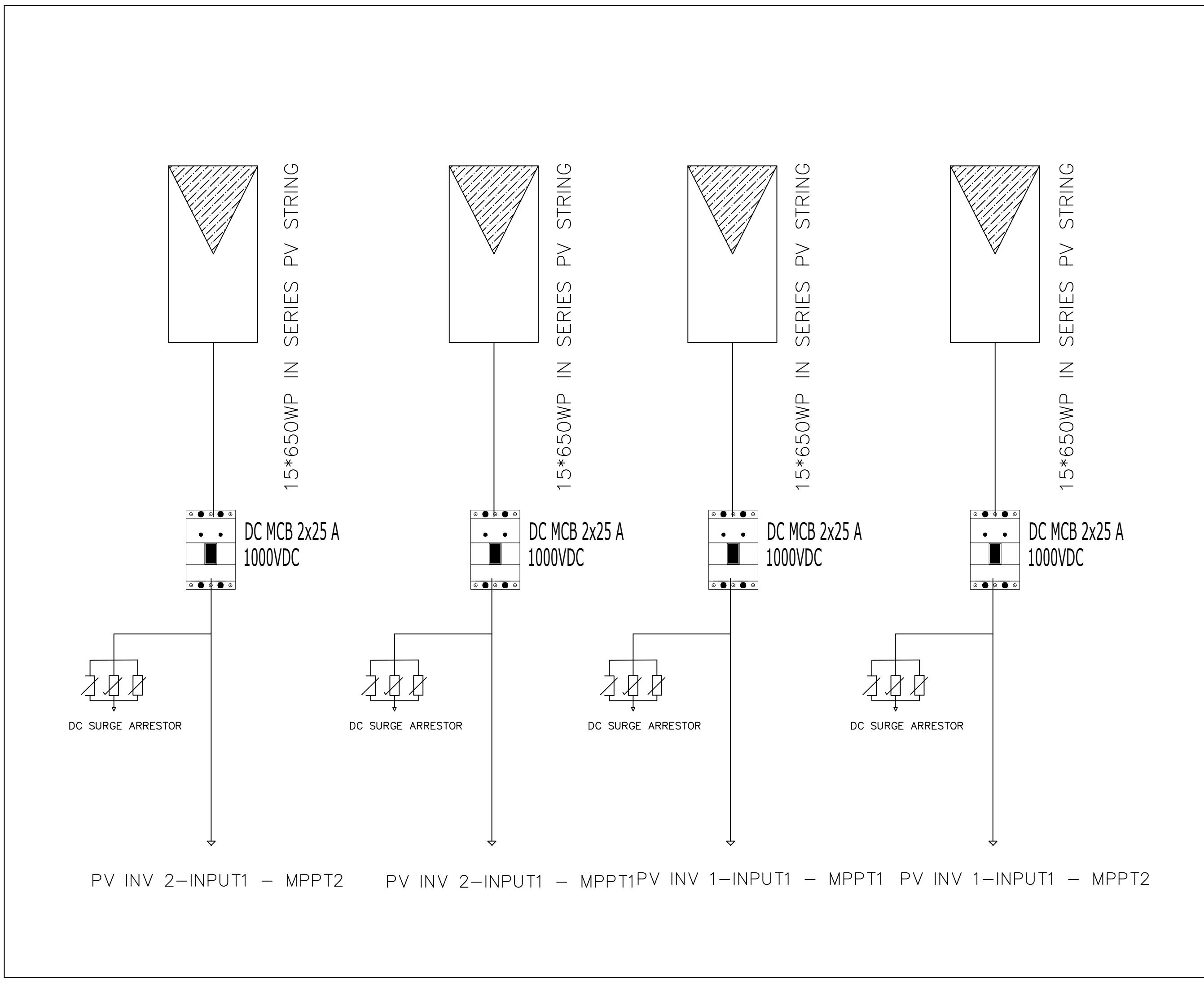
Tender No.: PZA1203211-10026

Designed by:

Ministry of Education

Location: Gaza Tel: 08-2641260
Email: info@mohe.ps Fax: 08-2641292

Drawing Title	BATTERY DC BOX - SINGLE LINE DIAGRAM	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	E04
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	



Notes

(1) All Dimensions Are In Cm.
(2) All Levels Are In Meter
(3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:

DMM

MCB

BATTERY

KWH
3PH

ENERGY METER

R S T

PILOT LAMPS

MTS

3 P DC MCB

SOLAR PANEL

CONCRETE

REVISIONS		
NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:

Belgium
partner in development

Contracting Authority:

Enabel

Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

Tender No.: PZA1203211-10026

Designed by:

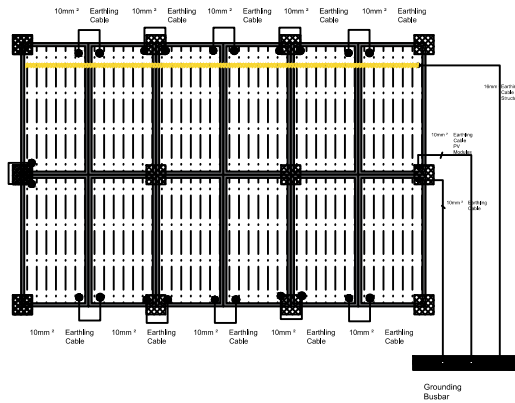
Ministry of Education

Location: Gaza
Email: info@mohe.ps

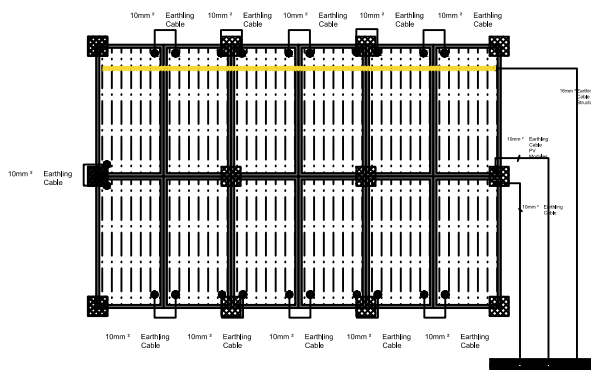
Tel: 08-2641260
Fax: 08-2641292

Drawing Title	PV COMBINER BOX - SINGLE LINE DIAGRAM	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	E05
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	

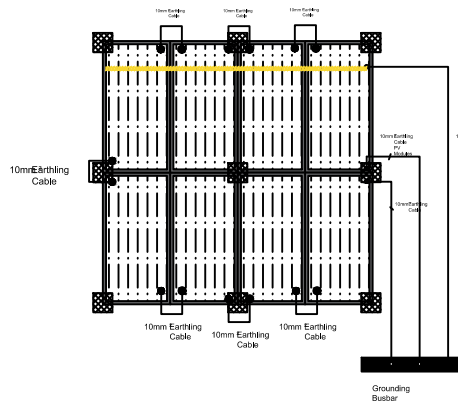
solar PV panels string 1 for
solar inverter No.1



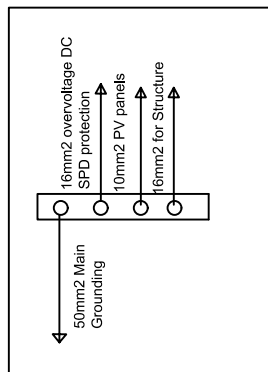
solar PV panels string 2 for
solar inverter No.1



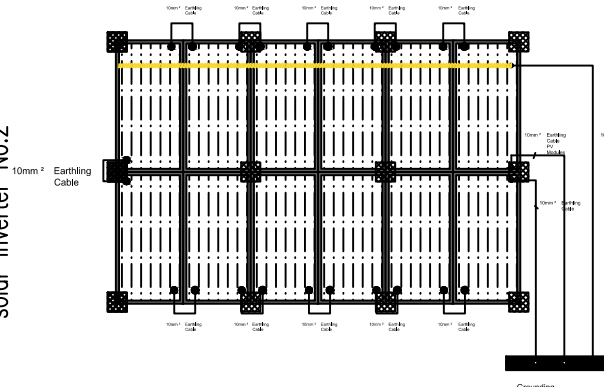
solar PV panels for string
1 and 2 for solar inverter
No.1



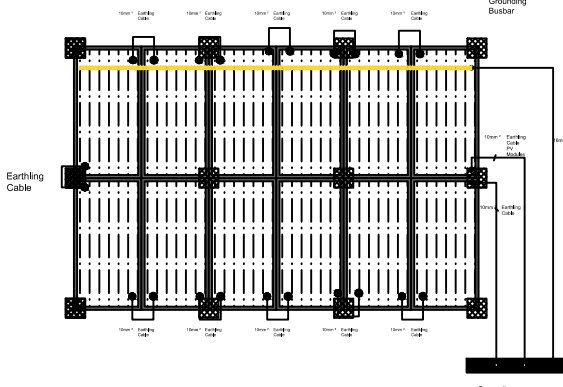
Grounding Bonding Busbar



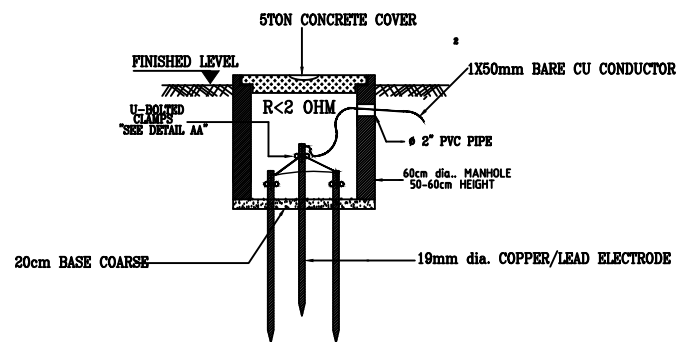
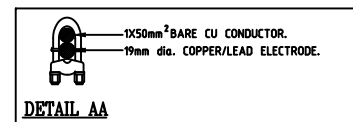
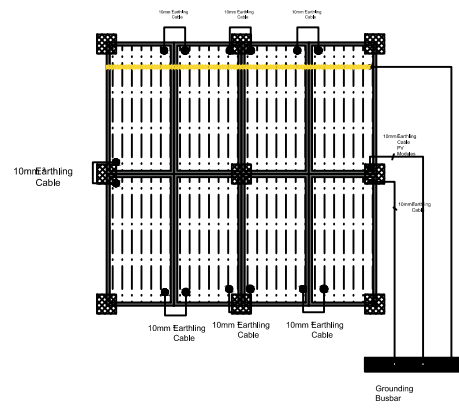
solar PV panels string 1 for
solar inverter No.2



solar PV panels string 2 for
solar inverter No.2



solar PV panels string 1 and
2 for solar inverter No.2

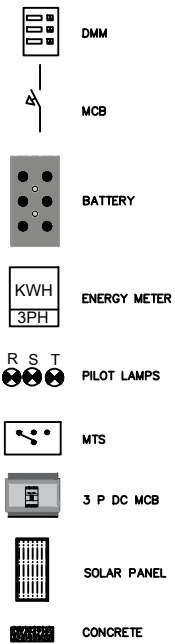


EARTHING MANHOLE DETAIL

Notes

- (1) All Dimensions Are In Cm.
- (2) All Levels Are In Meter
- (3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:



REVISIONS

NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:



Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

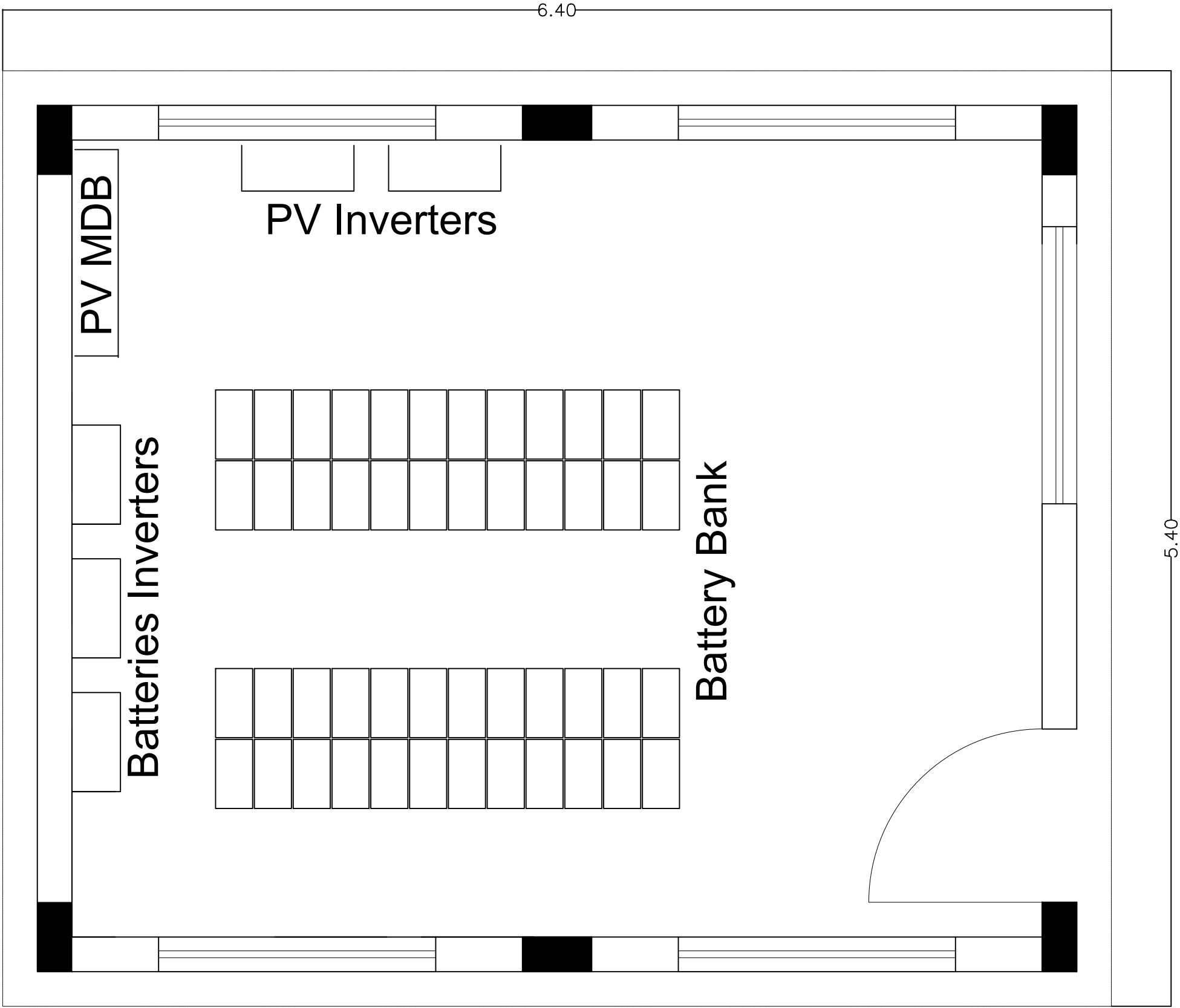
Tender No.: PZA1203211-10026

Designed by:



Location: Gaza Tel: 08-2641260
Email: info@mohe.ps Fax: 08-2641292

Drawing Title	EARTHING SYSTEM - SINGLE LINE DIAGRAM	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No: E06
Checked by:	Eng. Feras Baharat	
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	



Notes

(1) All Dimensions Are In Cm.
(2) All Levels Are In Meter
(3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:

DMM

MCB

BATTERY

ENERGY METER

PILOT LAMPS

MTS

3 P DC MCB

SOLAR PANEL

CONCRETE

REVISIONS		
NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF ROOF-TOP SOLAR PHOTOVOLTAIC SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:

 **Belgium**
partner in development

Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

Tender No.: PZA1203211-10026

Designed by:

 **Ministry of Education**

Location: Gaza
Email: info@mohe.ps

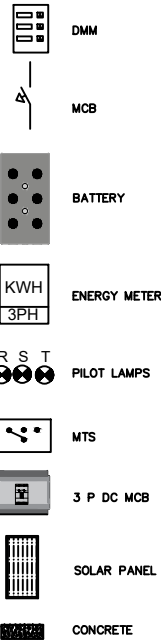
Tel: 08-2641260
Fax: 08-2641292

Drawing Title	DISTRIBUTION OF INVERTERS AND PANELS AT THE PV ROOM	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghann	Drawing No:
Checked by:	Eng. Feras Baharat	E07
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	

Notes

- (1) All Dimensions Are In Cm.
(2) All Levels Are In Meter
(3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:



REVISIONS

NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:



Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

Tender No.: PZA1203211-10026

Designed by:

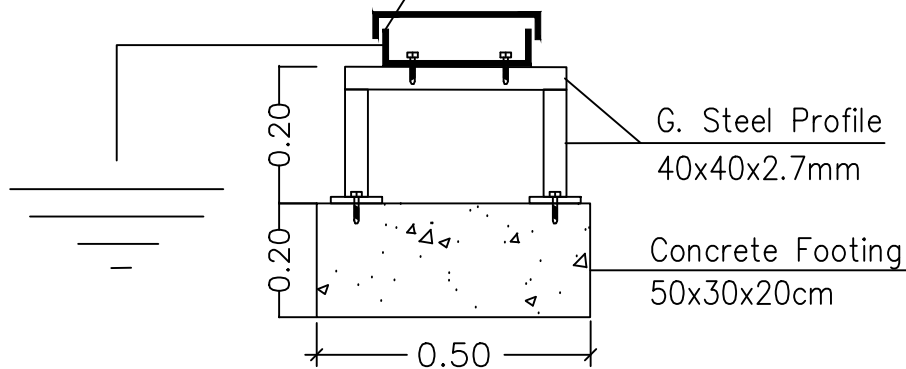


Location: Gaza Tel: 08-2641260
Email: info@mohe.ps Fax: 08-2641292

Drawing Title	CABLE TRAY	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	E08
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	

Hot dip galvanized Heavy Duty
Steel Cable Tray (20cm width)

With cover for DC and AC Cables



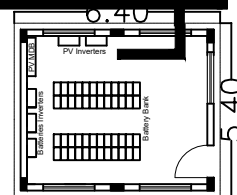
CABLE TRAY EXAMPLE DETAILS

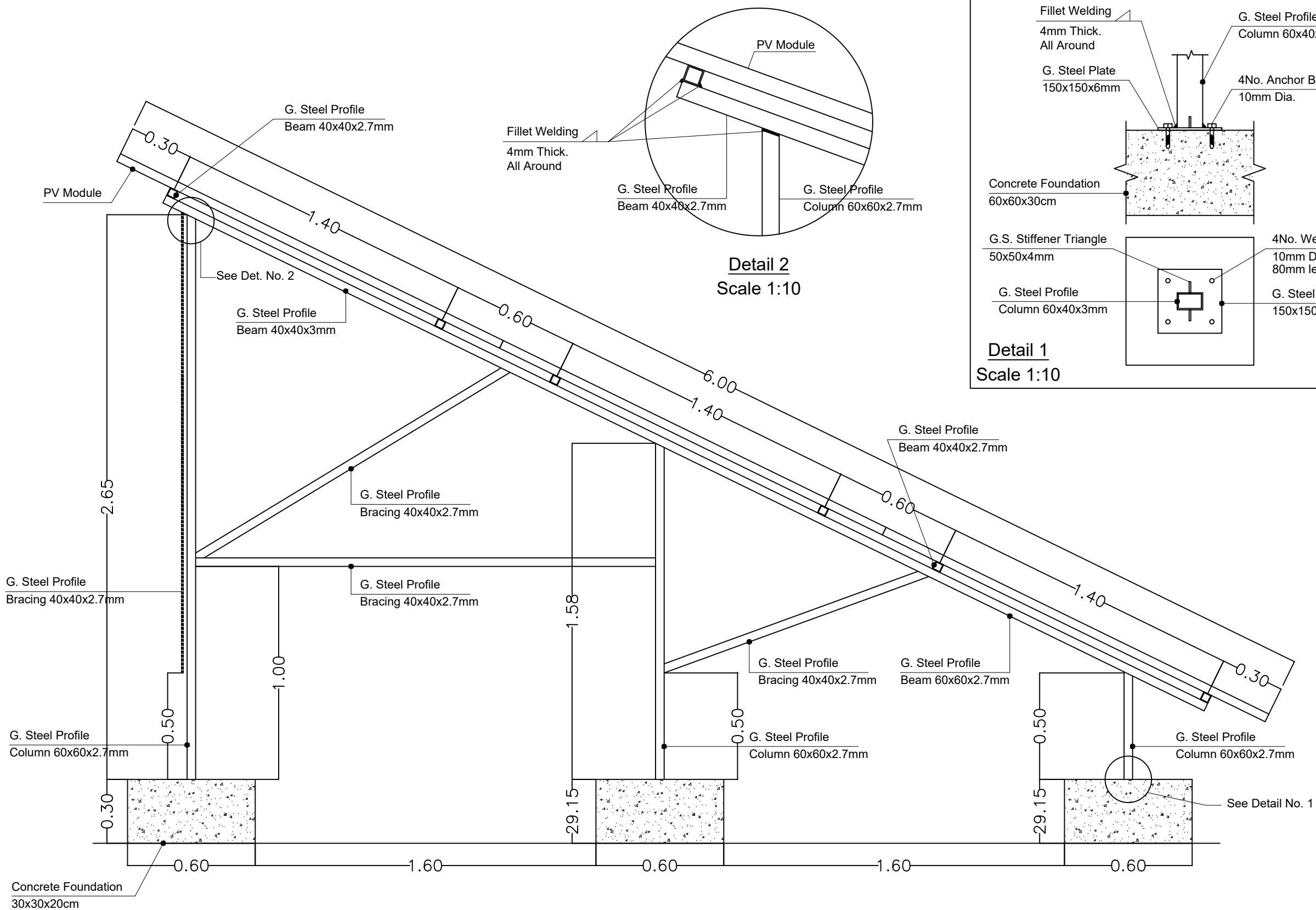
Combiner Box

20cmx8cm Covered perforated Cable Tray
For strings DC Cables

(1X50)mm² Cu

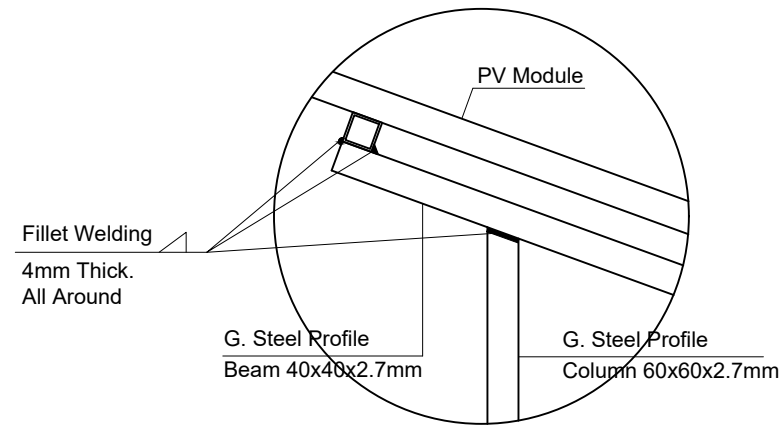
20cmx8cm Covered Cable Tray
For strings earthing Cables



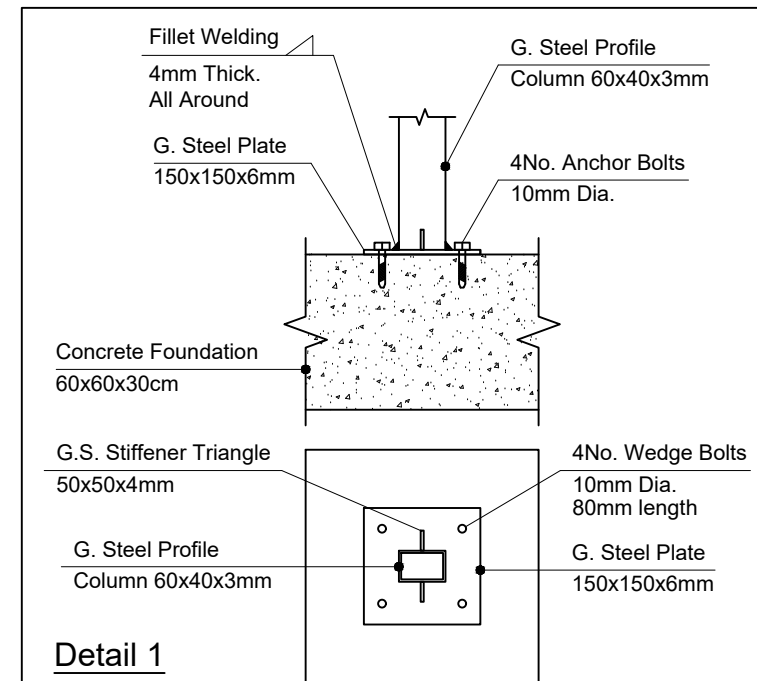


SIDE VIEW
Scale 1:20

MOUNTING STEEL STRUCTURE FOR PV STRINGS (1/2)



Detail 2
Scale 1:10

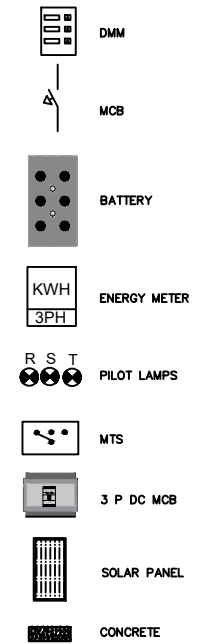


Detail 1
Scale 1:10

Notes

- (1) All Dimensions Are In Cm.
- (2) All Levels Are In Meter
- (3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:



REVISIONS

NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:



Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

Tender No.: PZA1203211-10026

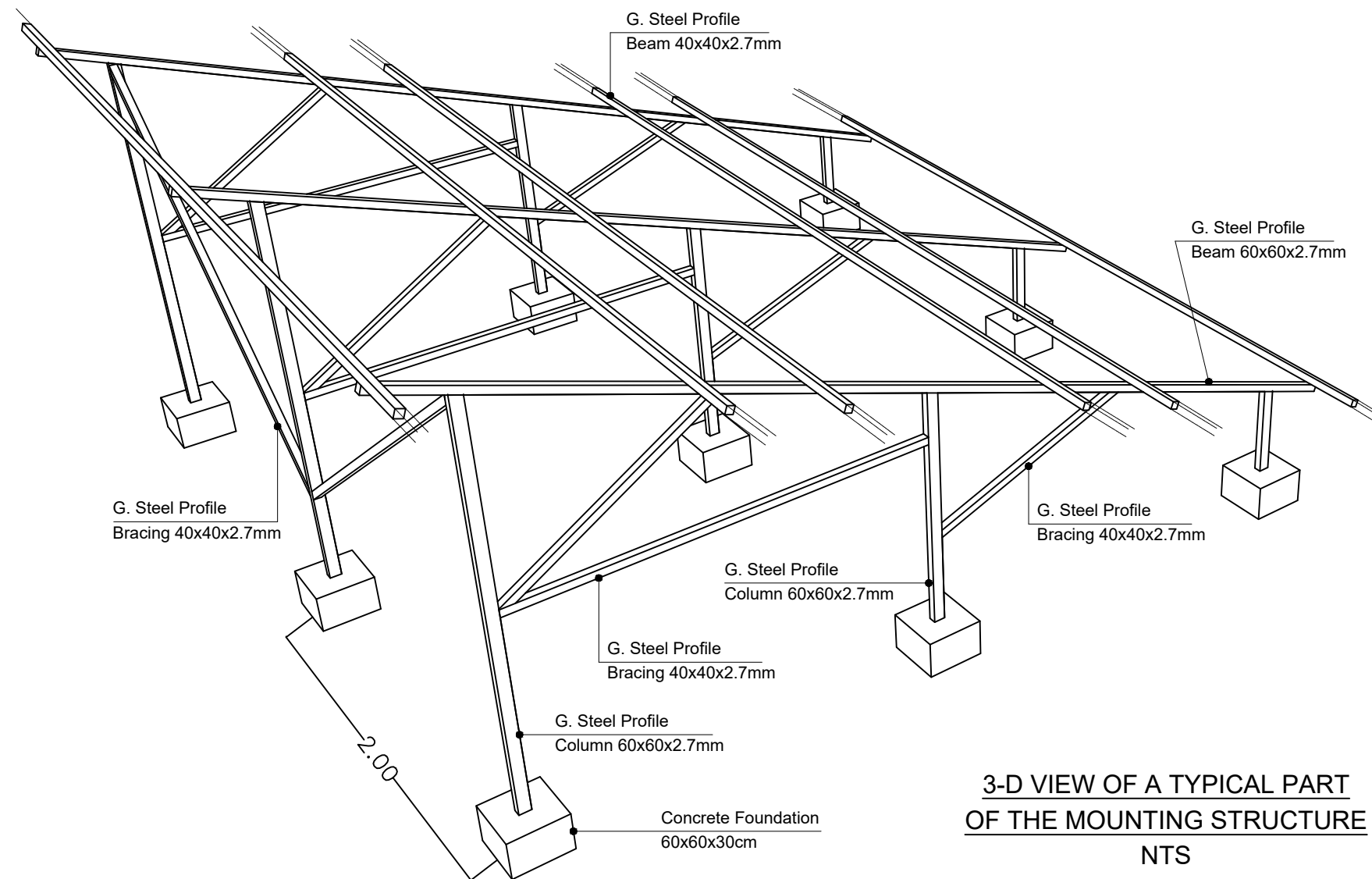
Designed by:



Location: Gaza
Email: info@mohe.ps

Tel: 08-2641260
Fax: 08-2641292

Drawing Title	MOUNTING STEEL STRUCTURE FOR PV STRINGS (1 of 5)	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	S01
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	



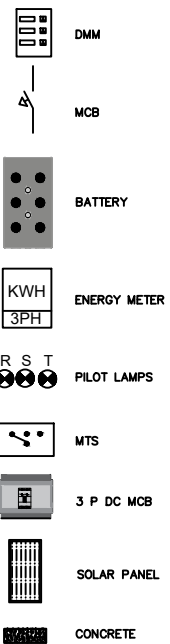
3-D VIEW OF A TYPICAL PART
OF THE MOUNTING STRUCTURE
NTS

MOUNTING STEEL STRUCTURE FOR PV STRINGS (2/2)

Notes

- (1) All Dimensions Are In Cm.
- (2) All Levels Are In Meter
- (3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:



REVISIONS

NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:



Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

Tender No.: PZA1203211-10026

Designed by:



Location: Gaza
Email: info@mohe.ps

Tel: 08-2641260
Fax: 08-2641292

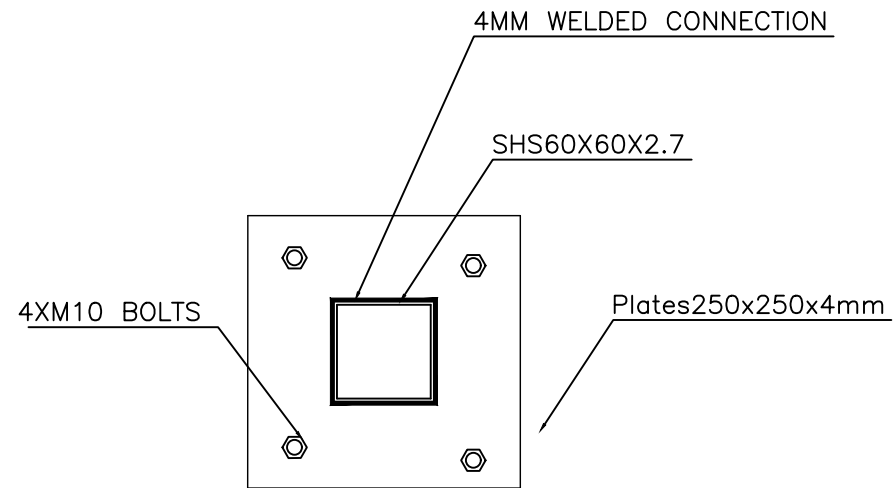
Drawing Title	MOUNTING STEEL STRUCTURE FOR PV STRINGS (2 of 5)	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	S02
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	

DETAIL 1

Scale 1:10

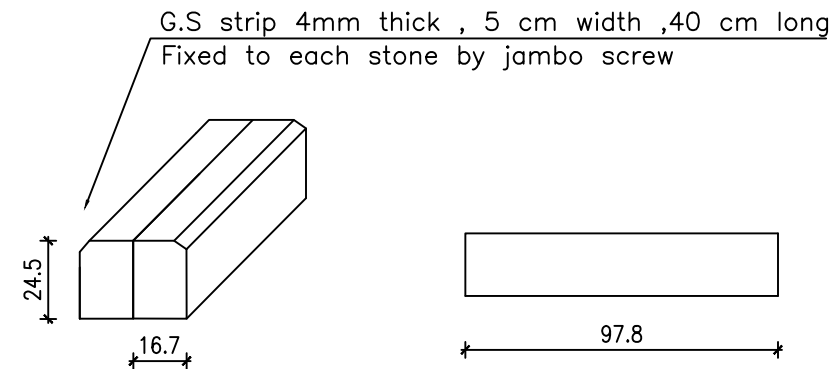
SECTION A-A

Scale 1:5



DETAIL 7

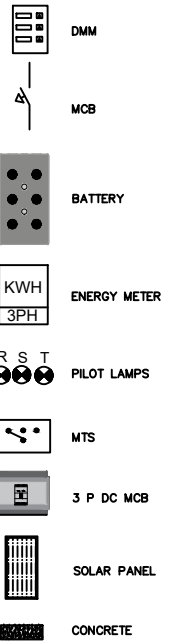
Scale 1:10



Notes

- (1) All Dimensions Are In Cm.
- (2) All Levels Are In Meter
- (3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:



REVISIONS

NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:



Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

Tender No.: PZA1203211-10026

Designed by:



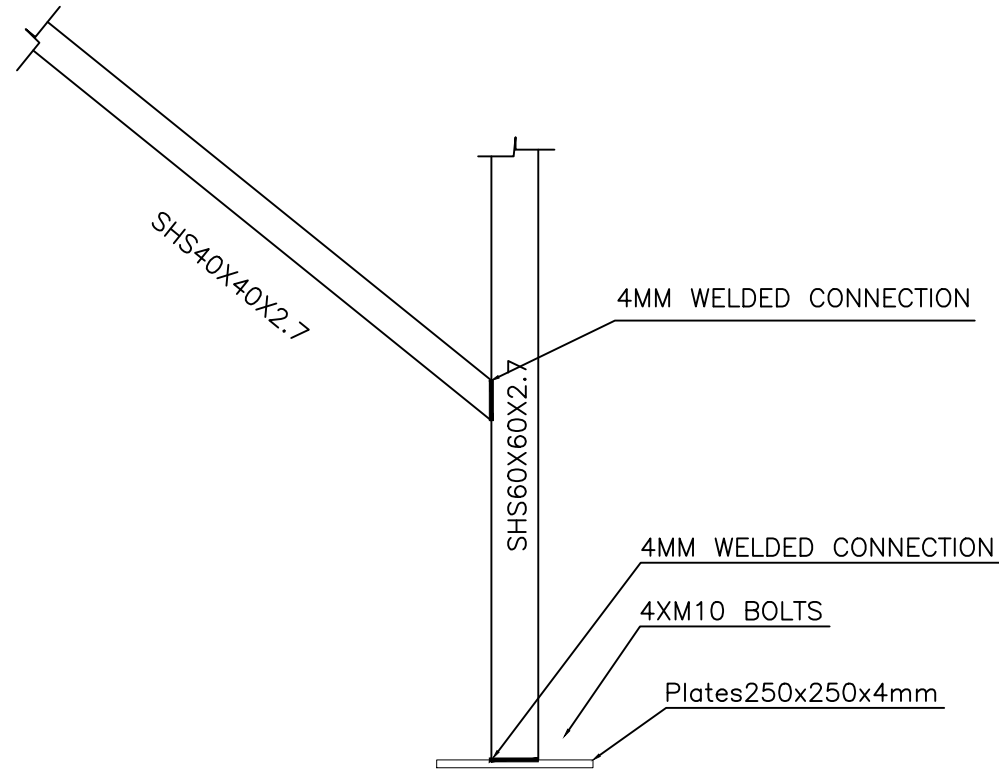
Location: Gaza
Email: info@moe.ps

Tel: 08-2641260
Fax: 08-2641292

Drawing Title	MOUNTING STEEL STRUCTURE FOR PV STRINGS (3 of 5)	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	S03
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	

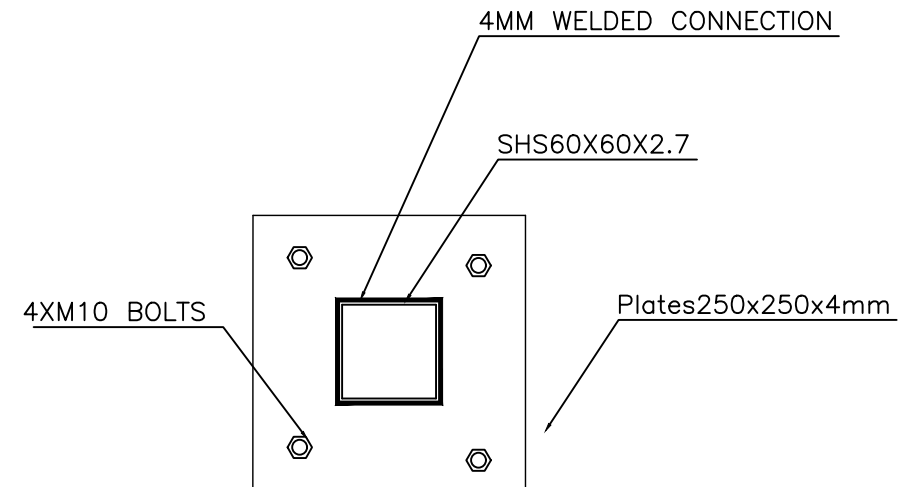
DETAIL 2

Scale 1:10



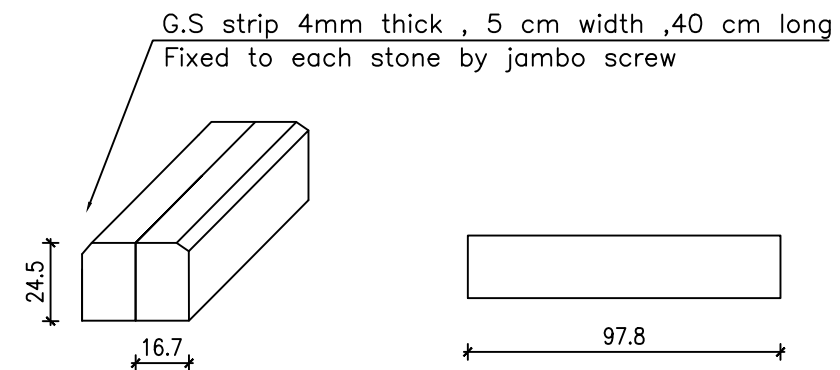
SECTION A-A

Scale 1:5



DETAIL 6

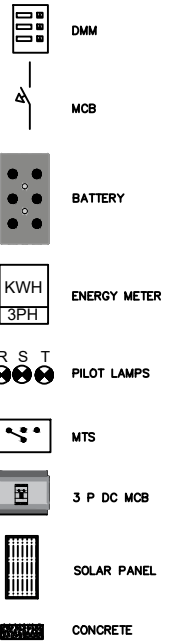
Scale 1:10



Notes

- (1) All Dimensions Are In Cm.
- (2) All Levels Are In Meter
- (3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:



REVISIONS

NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:



Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

Tender No.: PZA1203211-10026

Designed by:



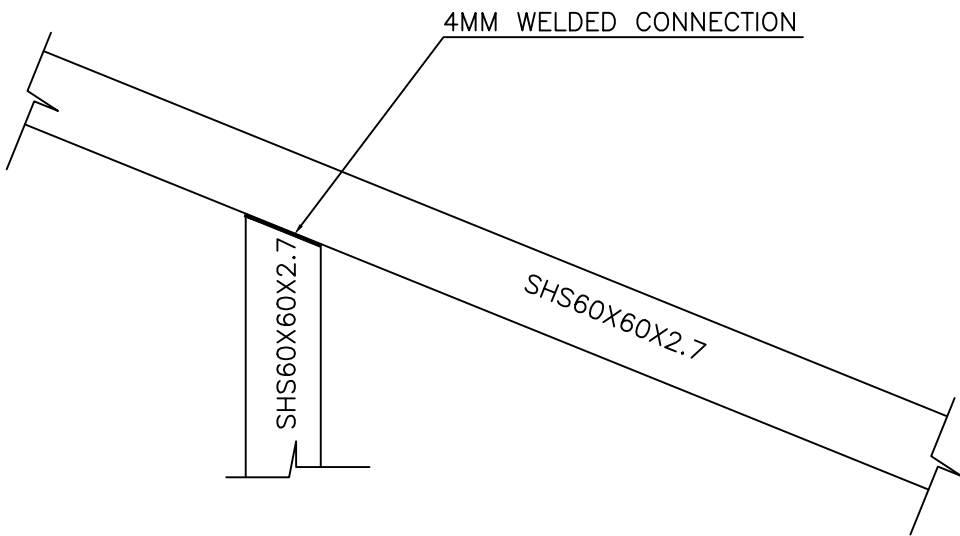
Location: Gaza
Email: info@mohe.ps

Tel: 08-2641260
Fax: 08-2641292

Drawing Title	MOUNTING STEEL STRUCTURE FOR PV STRINGS (4 of 5)	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	S04
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	

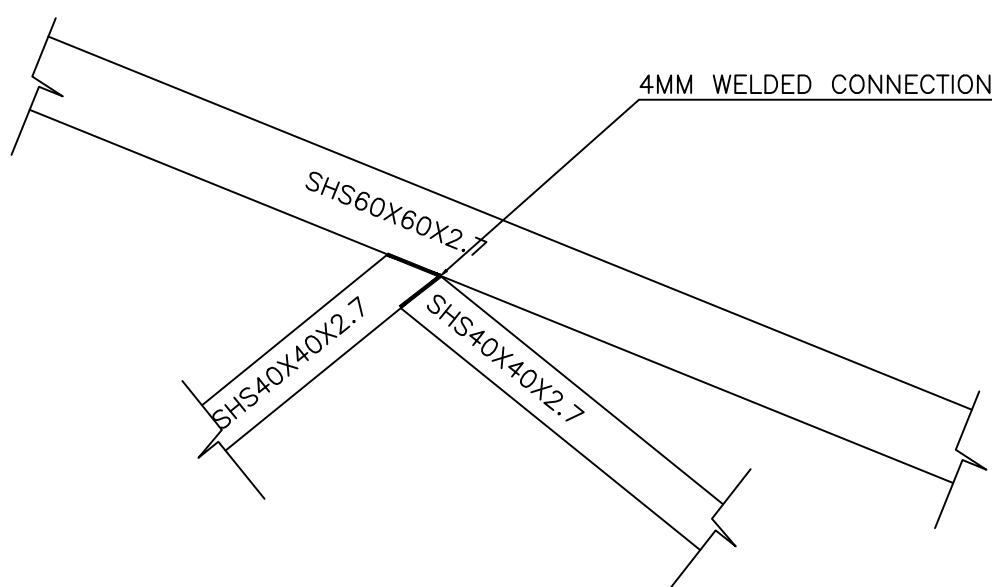
DETAIL 3

Scale 1:10



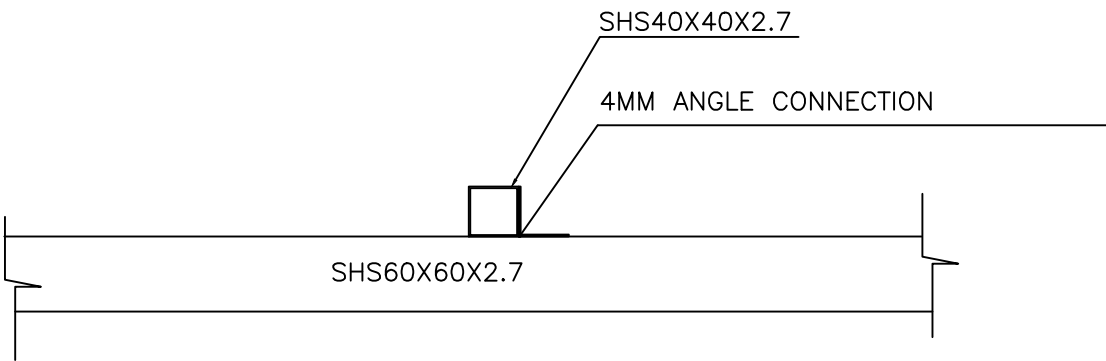
DETAIL 4

Scale 1:10



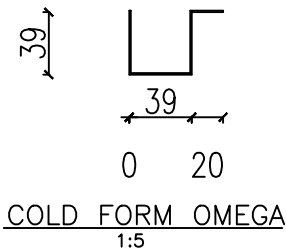
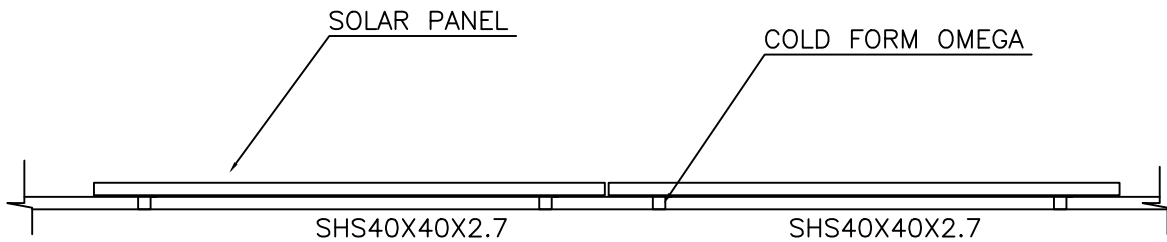
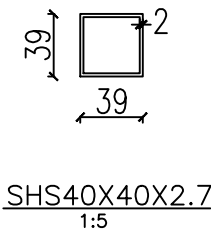
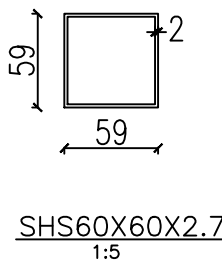
DETAIL 5

Scale 1:10



SECTIONS DETAIL

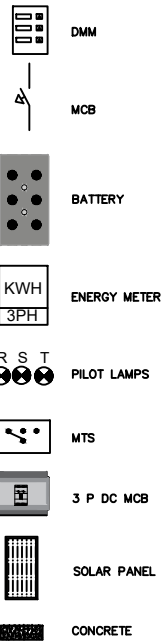
Scale 1:5



Notes

- (1) All Dimensions Are In Cm.
- (2) All Levels Are In Meter
- (3) Any Missing or Unclear Detail And All Fastening Systems For All Elements Shall be Approved by The Supervisor.

Legend:



REVISIONS

NO.	DRAWINGS	DATE
(1)	Final Design	1-MAY-2023
(2)		
(3)		

Project Name:

SUPPLY AND INSTALLATION OF
ROOF-TOP SOLAR PHOTOVOLTAIC
SYSTEMS ON SCHOOLS IN GAZA STRIP

Funded by:



Contracting Authority:



Project:

Lot 2 - School Names:

Abu Zar El Ghafari School
Khalil El Nobani High School
Ahmed El Nagar School
Elmoutanabi High School
Om El Fahem High School

Tender No.: PZA1203211-10026

Designed by:



Location: Gaza
Email: info@mohe.ps
Tel: 08-2641260
Fax: 08-2641292

Drawing Title	MOUNTING STEEL STRUCTURE FOR PV STRINGS (5 of 5)	Date: 27-02-2023 Scale: NA
Designed by:	Eng. Mohammed Ghabn	Drawing No:
Checked by:	Eng. Feras Baharat	S05
Approved by:	Eng. Feras Baharat	
Coordinate Manager:	Alexis Doucet	