

Enabel - Belgian Development Agency



# **PUBLIC WORKS CONTRACT**

## **for the Supply and Installation of Roof-Top Solar Photovoltaic Systems on Sebastia Municipality**


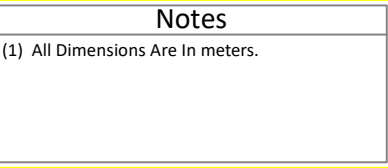
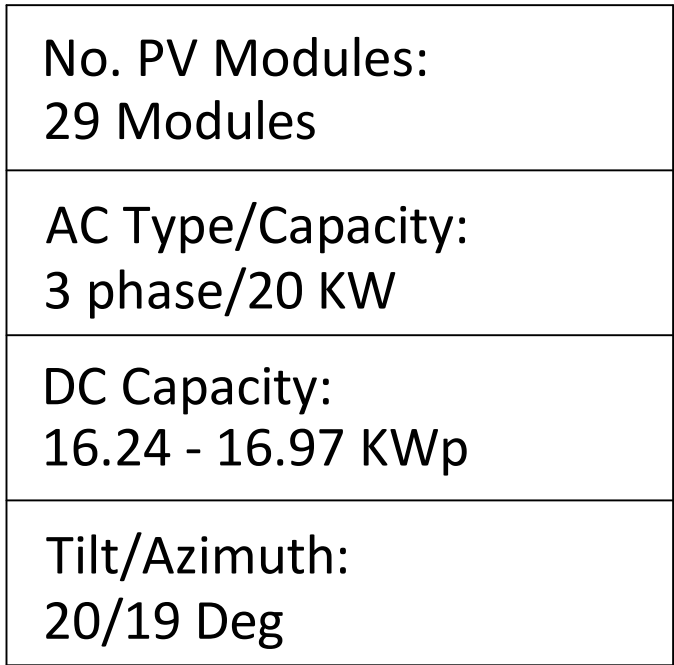
Reference No .:PZA1303311-10043

Funded by:



Designed By:





Area Affected By Shadow

PV Module (Top-View)

**Contracting Authority:**



Enabel - Belgian Development Agency



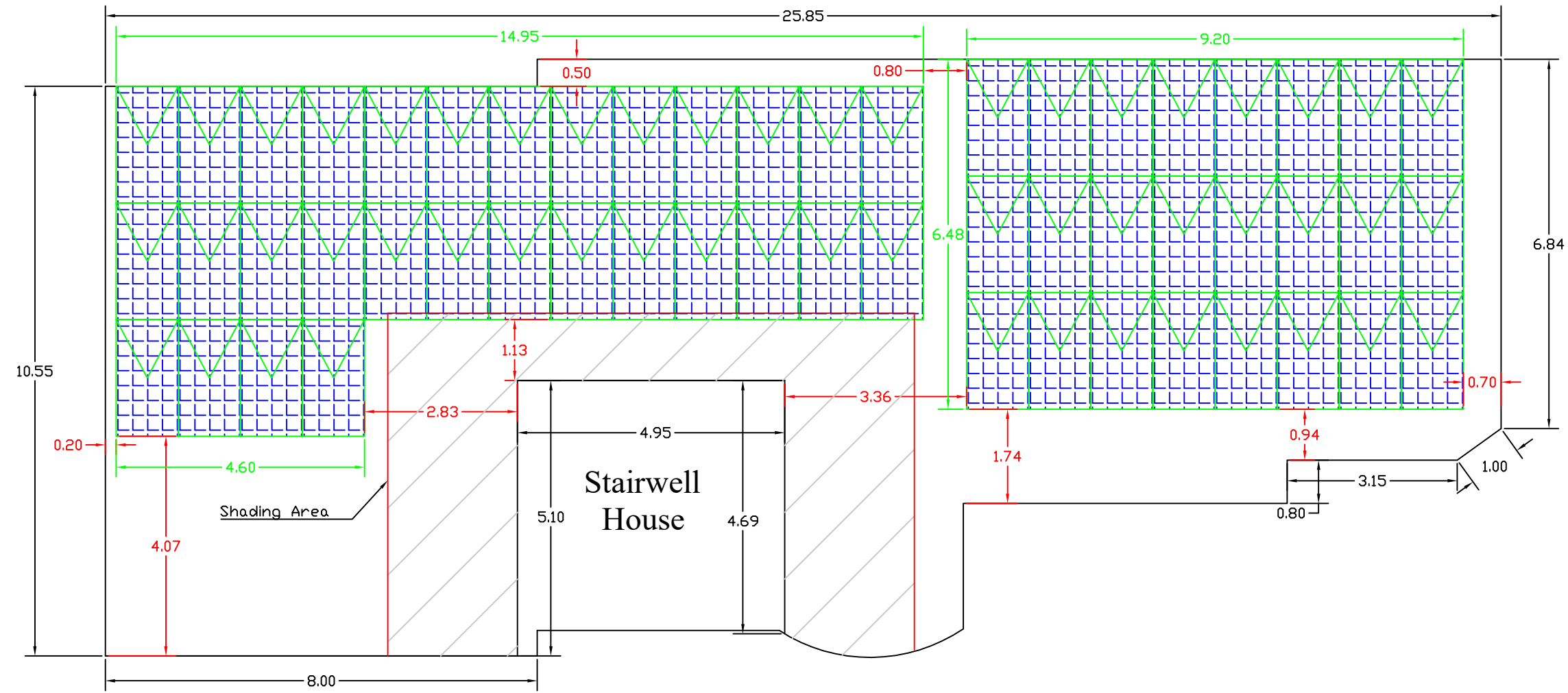
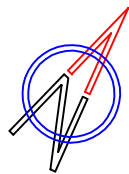
**Belgium**  
partner in development

**PUBLIC WORKS CONTRACT**  
**for the Supply and Installation of**  
**Roof-Top Solar Photovoltaic**  
**Systems on Sebastia Municipality**

**Reference No .:PZA1303311-10043**


  
 Address: Dura - Hebron  
 email: m.sweil@pasec.net  
 Tel.: +972 56 894 6657  
 Fax: +972 (2) 2281 494

Date:	2/10/2023
Scale:	1:100
Drawing No:	B1-01



No. PV Modules:  
54 Modules

AC Type/Capacity:  
3 phase/30 KW

DC Capacity:  
30.24 - 31.59 KWp

Tilt/Azimuth:  
20/34 Deg

#### Notes

(1) All Dimensions Are In meters.

#### Legend:

 Area Affected By Shadow

 PV Module (Top-View)

#### REVISIONS

NO.	DRAWINGS	DATE
(1)		
(2)		
(3)		

#### Contracting Authority:



Enabel - Belgian Development Agency

#### Funded By:



#### Project Title:

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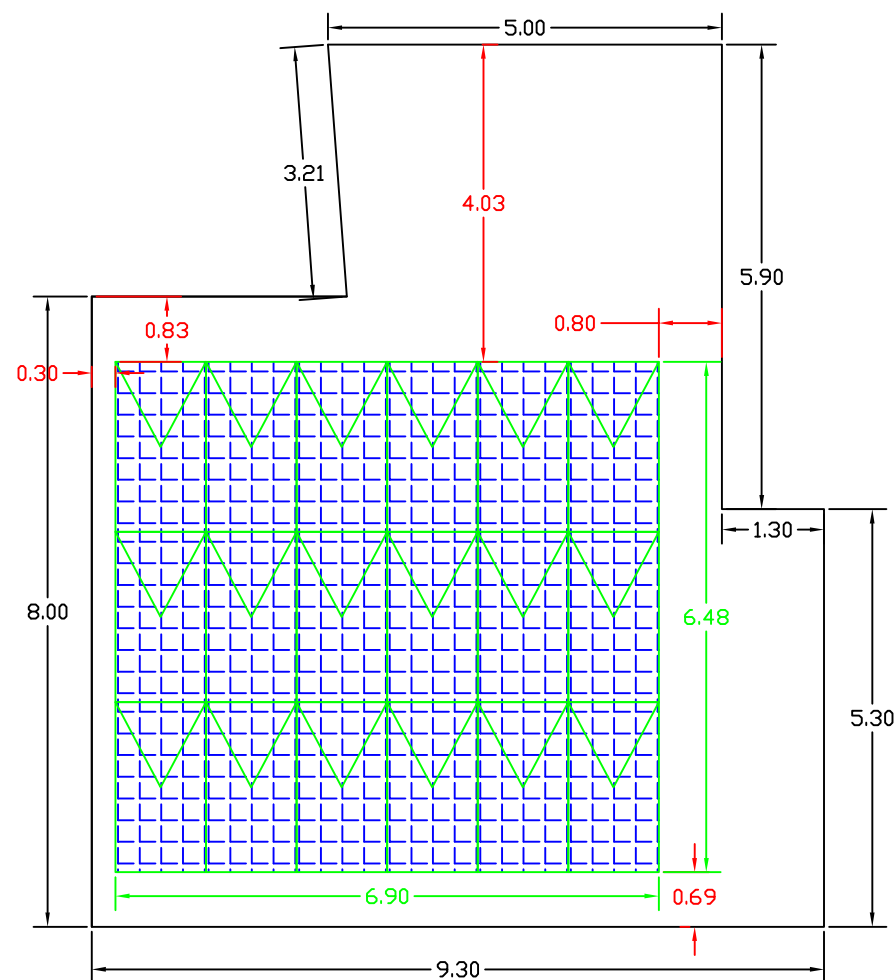
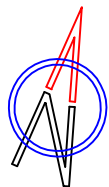
#### Designed by:



Address: Dura - Hebron  
email: m.swell@palsec.net

Tel.: +972 56 894 6657  
Fax: +972 (2) 2281 494

Drawing Title	PUBLIC SERVICE SYSTEM LAYOUT	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swell	Drawing No:
Checked by:	Mohammed A. Khalil	B2-01
Approved by:		
Coordinate Manager:		



No. PV Modules:  
18 Modules

AC Type/Capacity:  
3 phase/10 KW

DC Capacity:  
10.08 - 10.53 KWp

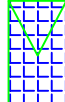
Tilt/Azimuth:  
20/14 Deg

## Notes

(1) All Dimensions Are In meters.

## Legend:

 Area Affected By Shadow

 PV Module (Top-View)

## REVISIONS

NO.	DRAWINGS	DATE
(1)		
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(3)		

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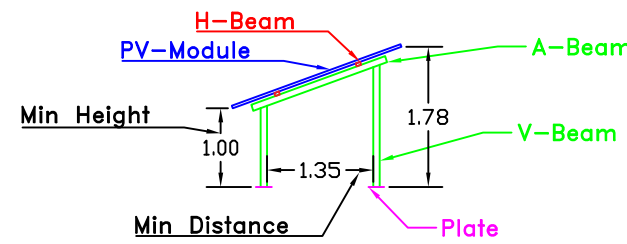
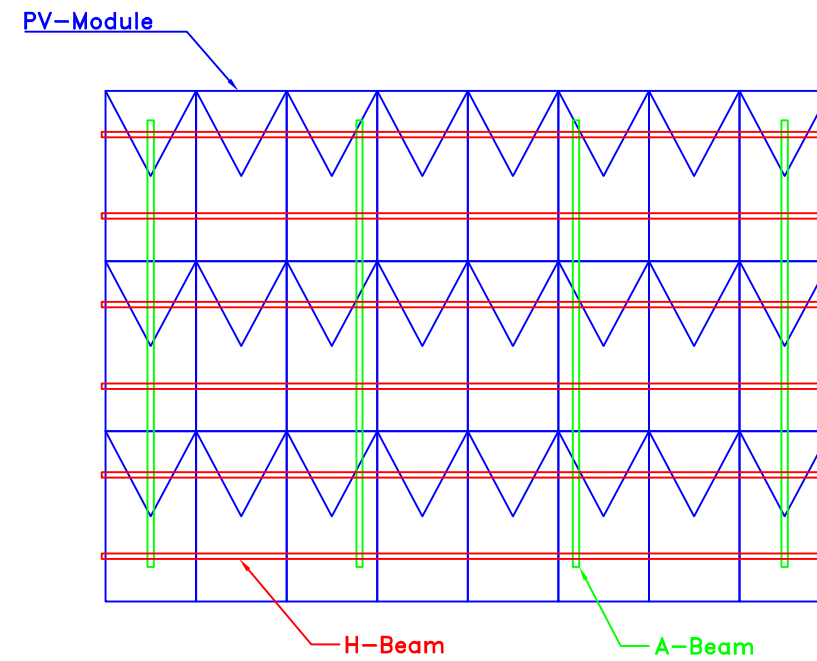
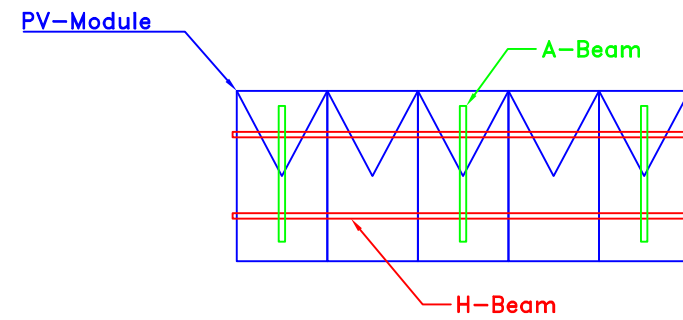
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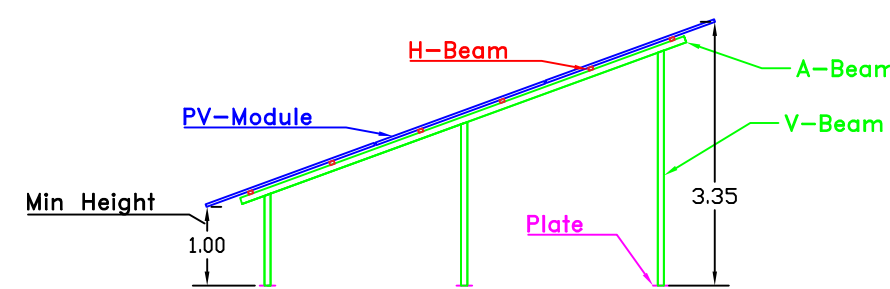
Address: Dura - Hebron  
email: m.swell@palsec.net

Tel.: +972 56 894 6657  
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Drawing Title	POST OFFICE SYSTEM LAYOUT	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swili	Drawing No:
Checked by:	Mohammed A. Khalil	B3-01
Approved by:		
Coordinate Manager:		



1VM-Support 3 Units



3VM-Support 4 Units

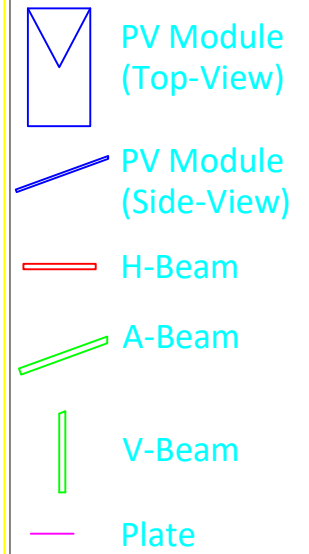
Item	Min. Specs
A-Beam/ V-Beam	80x80x3 mm
H-Beam	40x60x3 mm
Plate	200x200x8mm

From: To	Distance
Module Edge: H-Beam End	4-6 cm
A-Beam: A-Beam	MAX 275 cm
PV Module: PV Module	MIN 2 cm

## Notes

- (1) All Dimensions Are In meters.
- (2) All components made of steel should be Hot-Dip Galvanized.
- (3) PVC End-Cap should be used with all H-Beam Ends.

## Legend:



## REVISIONS

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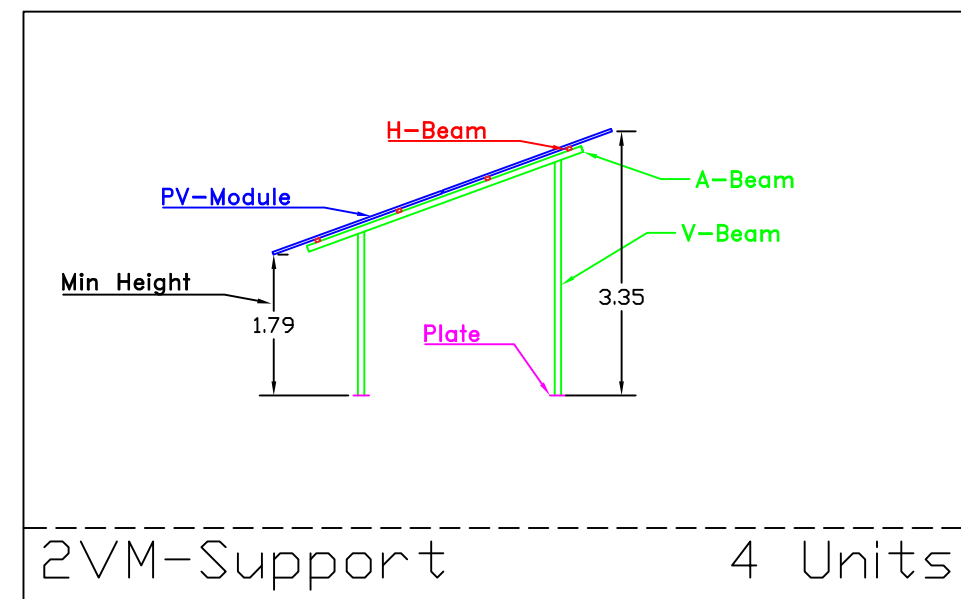
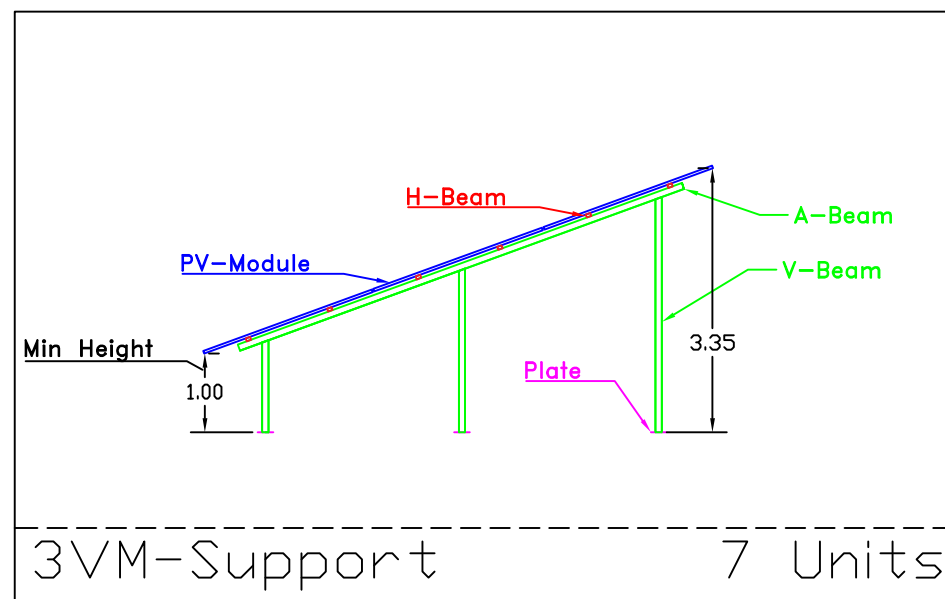
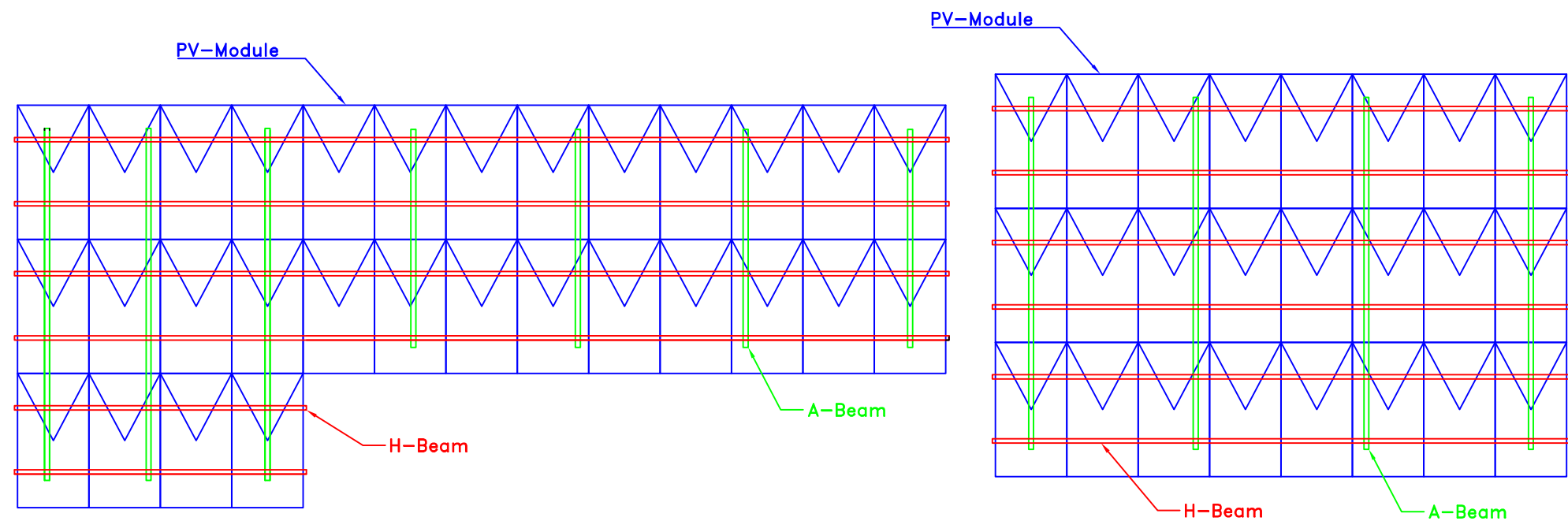
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## Designed by:



Address: Dura - Hebron  
email: m.swell@palsec.net  
Tel.: +972 56 894 6657  
Fax: +972 (2) 2281 494

Drawing Title	MAIN OFFICE SUPPORT STRUCTURE	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swell	Drawing No:
Checked by:	Mohammed A. Khalil	B1-02
Approved by:		
Coordinate Manager:		



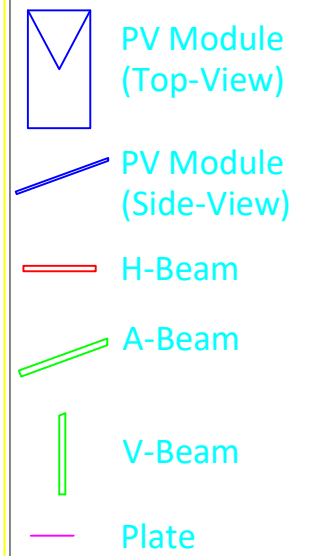
Item	Min. Specs
A-Beam/ V-Beam	80x80x3 mm
H-Beam	40x60x3 mm
Plate	200x200x8mm

From: To	Distance
Module Edge: H-Beam End	4-6 cm
A-Beam: A-Beam	MAX 275 cm
PV Module: PV Module	MIN 2 cm

## Notes

- (1) All Dimensions Are In meters.
- (2) All components made of steel should be Hot-Dip Galvanized.
- (3) PVC End-Cap should be used with all H-Beam Ends.

## Legend:



## REVISIONS

NO.	DRAWINGS	DATE
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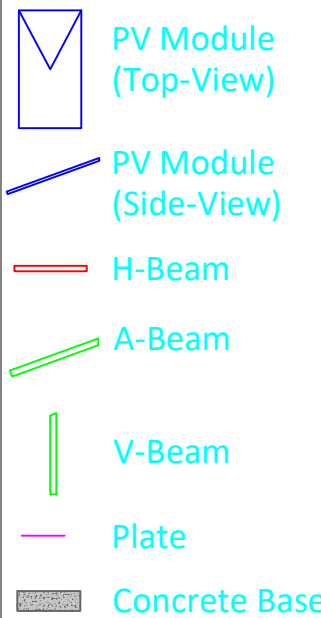
Tel.: +972 56 894 6657  
Fax: +972 (2) 2281 494

Drawing Title	PUBLIC SERVICE SUPPORT STRUCTURE	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swell	Drawing No:
Checked by:	Mohammed A. Khalil	B2-02
Approved by:		
Coordinate Manager:		

# Notes

- (1) All Dimensions Are In meters.  
(2) All components made of steel should be Hot-Dip Galvanized.  
(3) PVC End-Cap should be used with all H-Beam Ends.

## Legend:



REVISIONS		
NO.	DRAWINGS	DATE
(1)		
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(3)		

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Reference No .:PZA1303311-10043

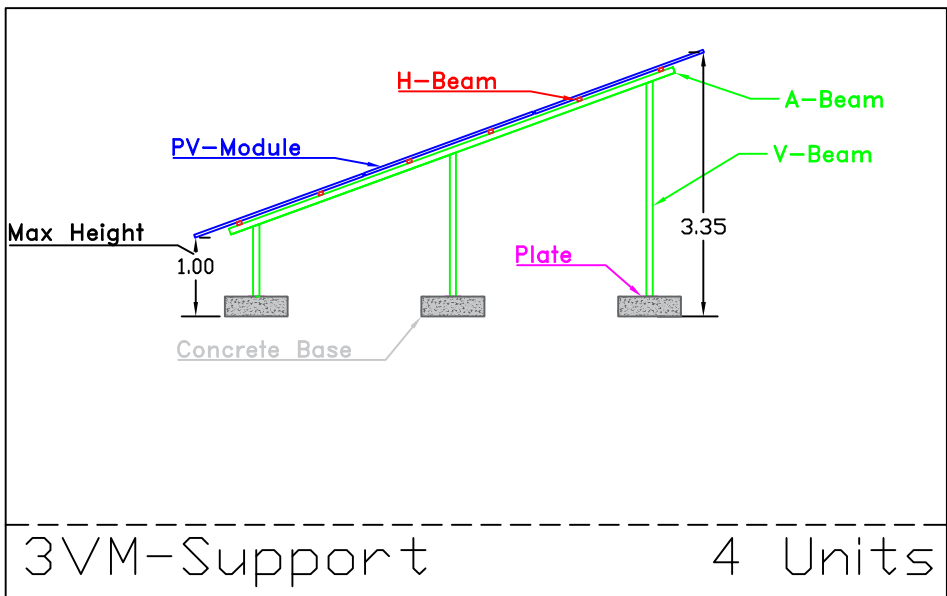
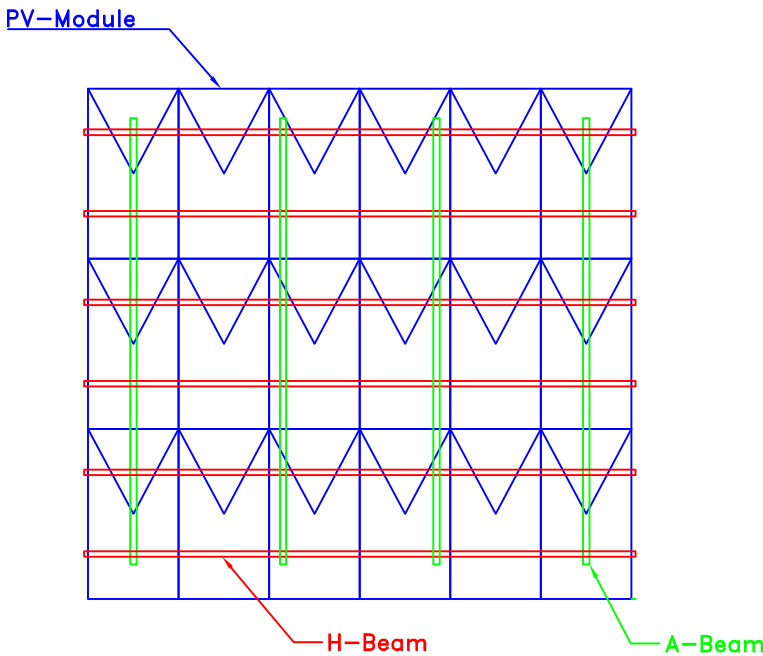
## Designed by:



Address: Dura - Hebron  
email: m.swell@palsec.net

Tel.: +972 56 894 6657  
Fax: +972 (2) 2281 494

Drawing Title	POST OFFICE SUPPORT STRUCTURE	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swell	Drawing No: <b>B3-02</b>
Checked by:	Mohammed A. Khalil	
Approved by:		
Coordinate Manager:		



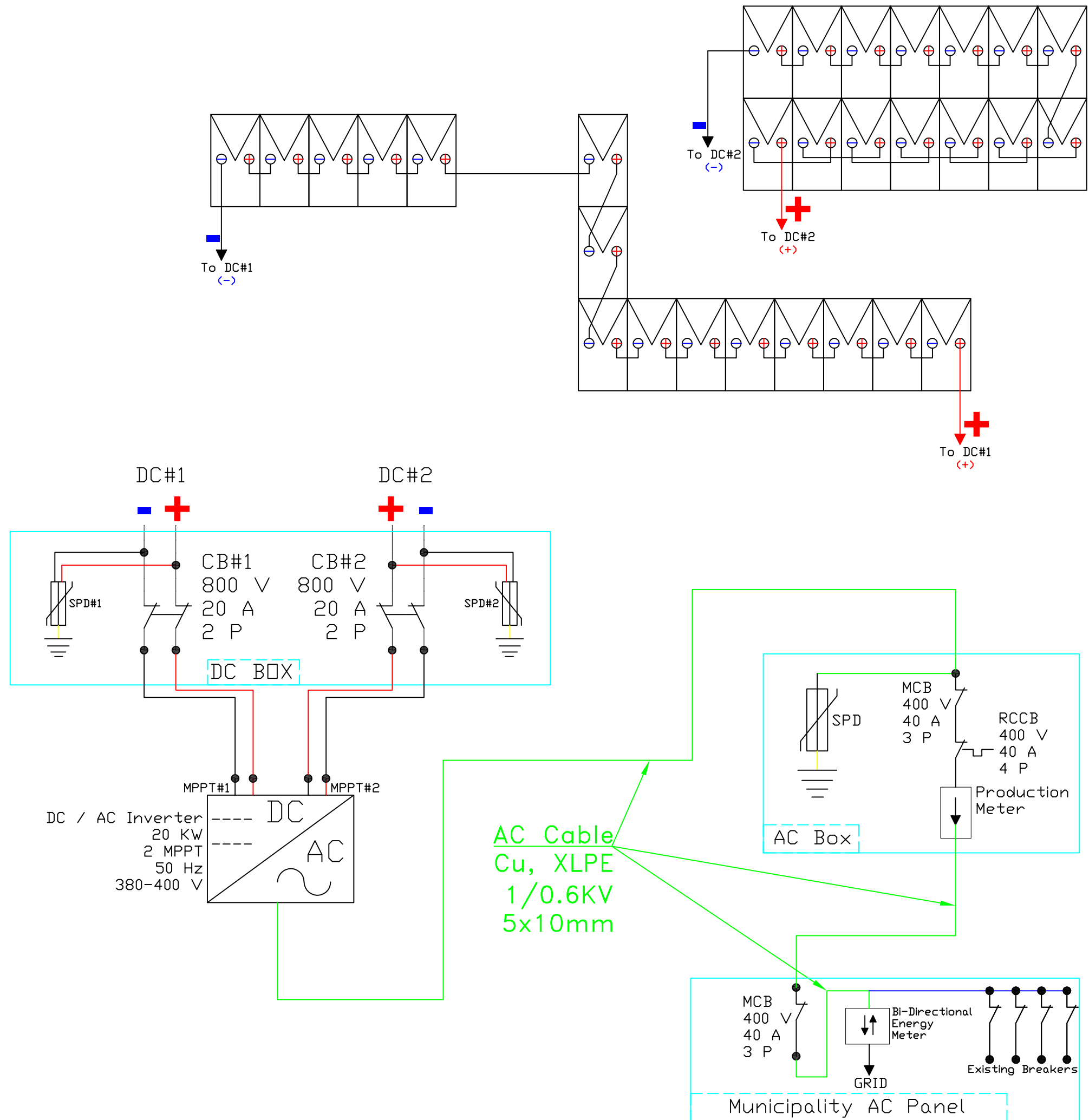
Item	Min. Specs
A-Beam/ V-Beam	80x80x3 mm
H-Beam	40x60x3 mm
Plate	200x200x8mm

From: To	Distance
Module Edge: H-Beam End	4-6 cm
A-Beam: A-Beam	MAX 275 cm
PV Module: PV Module	MIN 2 cm

Minimum Mass  
of each concrete  
base is 240 Kg.

## List of Main Material

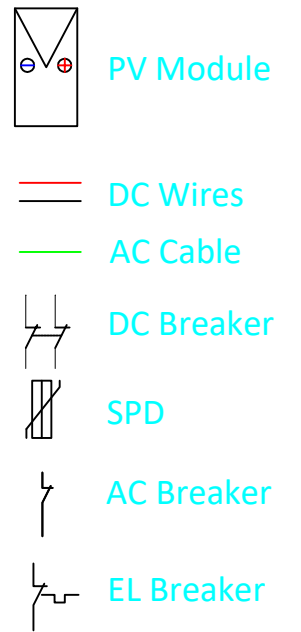
Item	Specs	Qty
PV Module	560-585 Wp	29
DC Wire	>= 1KV >= 6mm2	L.S.
DC Panel	IP>= 65 Galvanized	1
DC Breaker	>=800 V 20 A, 2P	2
DC SPD	Class 2	2
Grid Tie Inverter	17-20 KW >= 2 MPPT	1
AC Cable	5x10mm Cu, XLPE	L.S.
AC Panel	IP>= 65 Galvanized	1
AC Breaker	>=400 V 40 A, 3P	2
AC SPD	Class 2	1
EL Breaker	>=400 V 40 A, 4P >=0.3A	1
Production Meter	400 V Class <= 1	1
Bi-Dir. Meter	400 V Class <= 0.5	1



### Notes

- (1) All Cables & Wires should be Protected by UV Conduit and/or Covered Steel Cable Tray
- (2) DC Connectors (MC4) Should have IP68 Class

### Legend:



### REVISIONS

NO.	DRAWINGS	DATE
(1)		
(2)		
(3)		

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Enabel - Belgian Development Agency

### Funded By:



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Roof-Top Solar Photovoltaic  
Systems on Sebastia Municipality

Reference No.: PZA1303311-10043

### Designed by:



Address: Dura - Hebron  
email: m.swliti@palsec.net

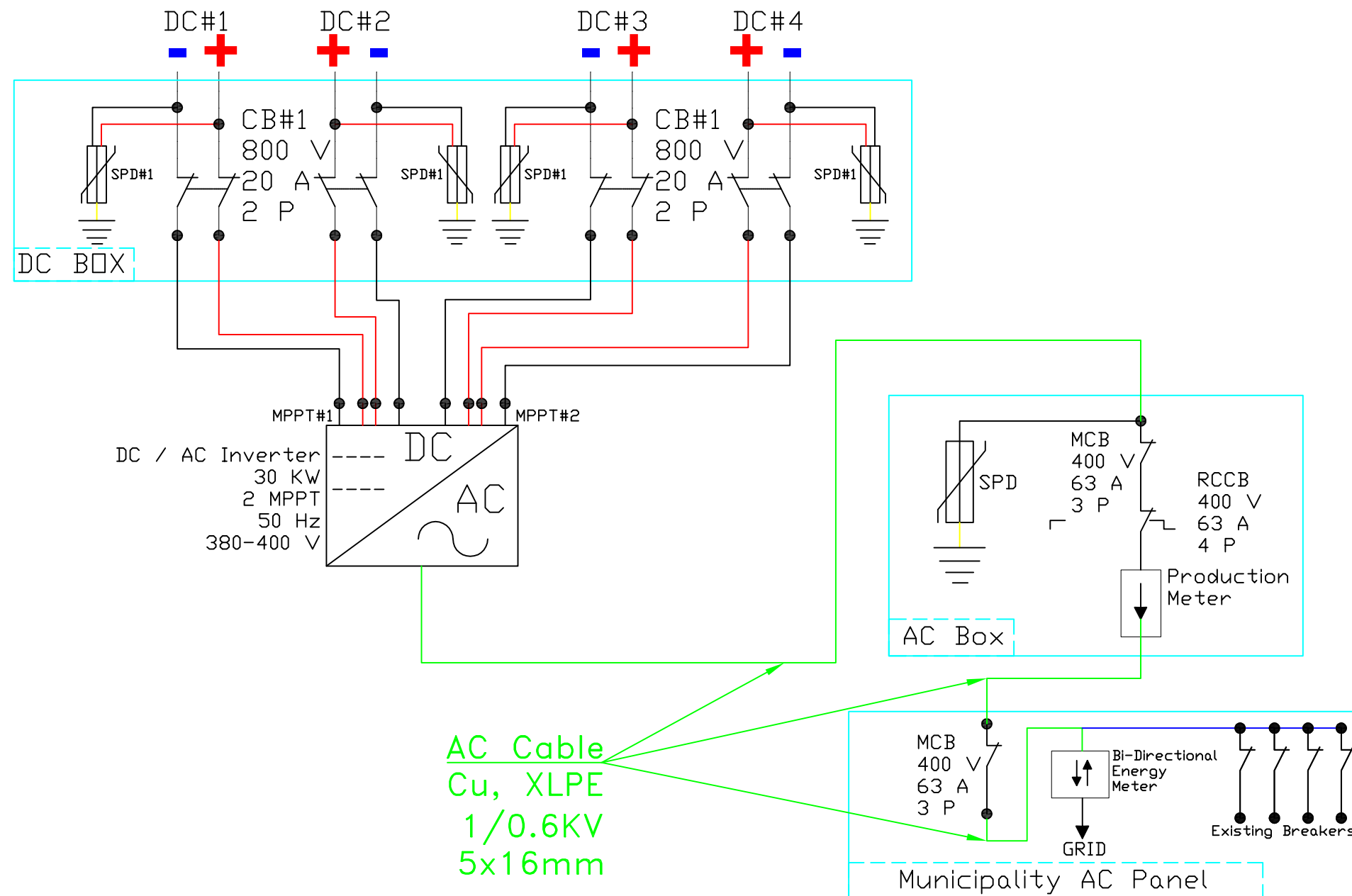
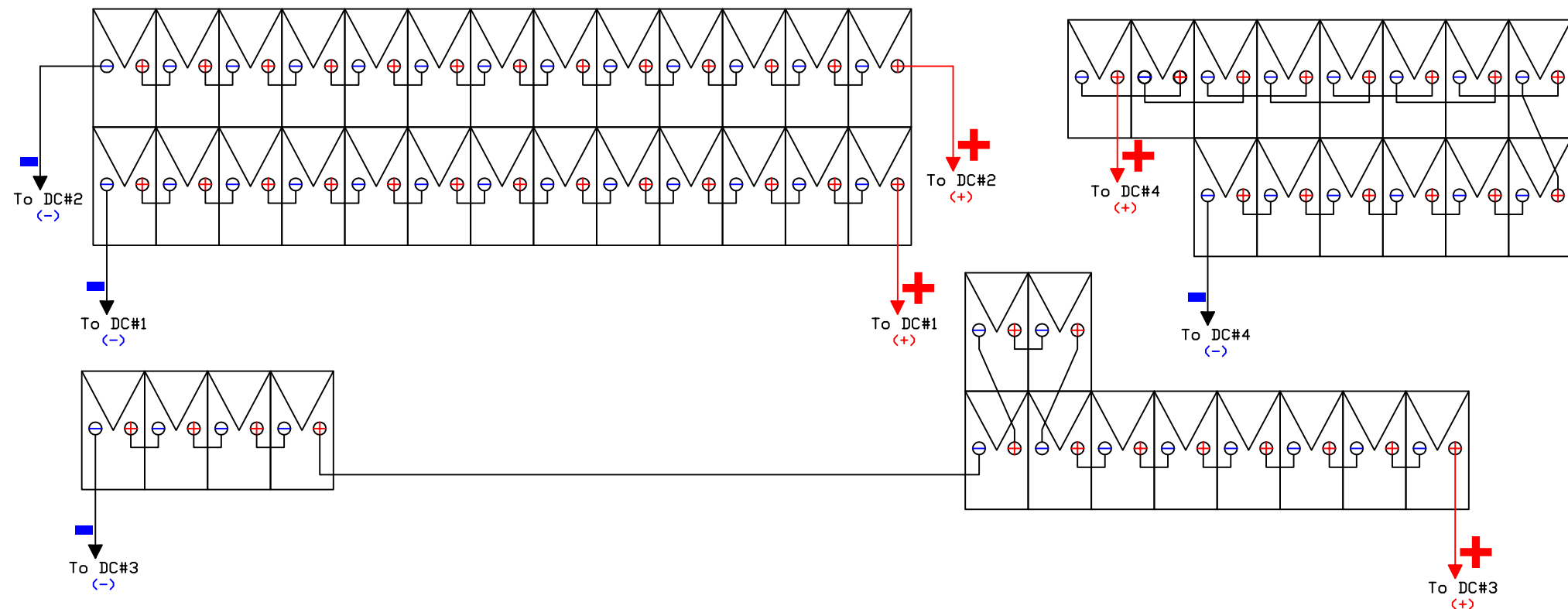
Tel.: +972 56 894 6657  
Fax: +972 (2) 2281 494

Drawing Title	MAIN OFFICE ELECTRIC DESIGN	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swliti	Drawing No:
Checked by:	Mohammed A. Khalil	B1-03
Approved by:		
Coordinate Manager:		



## List of Main Material

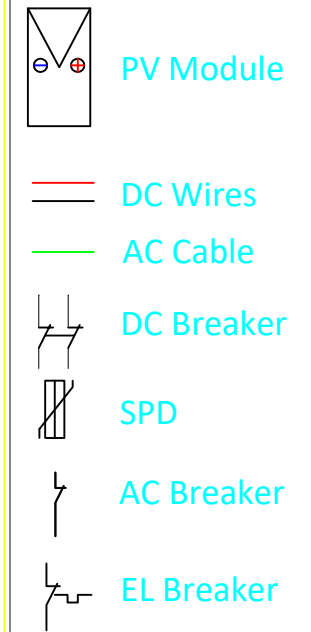
Item	Specs	Qty
PV Module	560-585 Wp	54
DC Wire	>= 1KV >= 6mm2	L.S.
DC Panel	IP>= 65 Galvanized	1
DC Breaker	>=800 V 20 A, 2P	4
DC SPD	Class 2	4
Grid Tie Inverter	30-36 KW >= 2 MPPT	1
AC Cable	5x16mm Cu, XLPE	L.S.
AC Panel	IP>= 65 Galvanized	1
AC Breaker	>=400 V 63 A, 3P	2
AC SPD	Class 2	1
EL Breaker	>=400 V 63 A, 4P >=0.3A	1
Production Meter	400 V Class <= 1	1
Bi-Dir. Meter	400 V Class <= 0.5	1



### Notes

- (1) All Cables & Wires should be Protected by UV Conduit and/or Covered Steel Cable Tray
- (2) DC Connectors (MC4) Should have IP68 Class

### Legend:



### REVISIONS

NO.	DRAWINGS	DATE
(1)		
(2)		
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### Funded By:



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Roof-Top Solar Photovoltaic  
Systems on Sebastia Municipality

Reference No.: PZA1303311-10043

### Designed by:



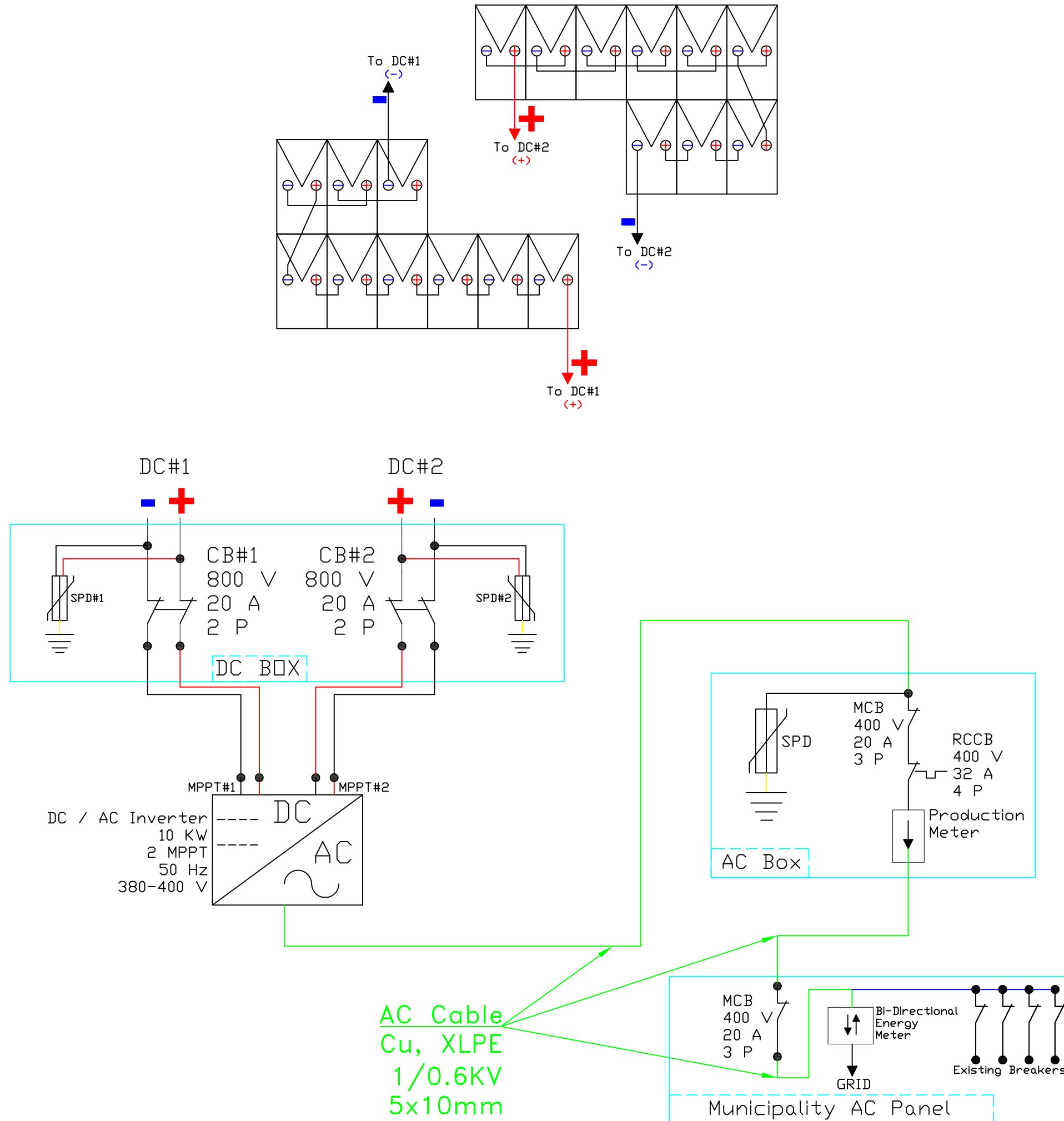
Address: Dura - Hebron  
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Tel.: +972 56 894 6657  
Fax: +972 (2) 2281 494

Drawing Title	PUBLIC SERVICE ELECTRIC DESIGN	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swell	Drawing No:
Checked by:	Mohammed A. Khalil	B2-03
Approved by:		
Coordinate Manager:		

## List of Main Material

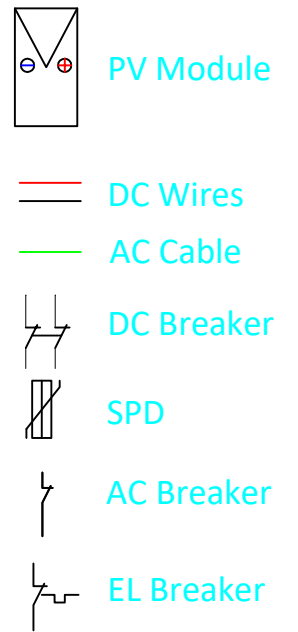
Item	Specs	Qty
PV Module	560-585 Wp	18
DC Wire	>= 1KV >= 6mm2	L.S.
DC Panel	IP>= 65 Galvanized	1
DC Breaker	>=800 V 20 A, 2P	2
DC SPD	Class 2	2
Grid Tie Inverter	10 KW >= 2 MPPT	1
AC Cable	5x10mm Cu, XLPE	L.S.
AC Panel	IP>= 65 Galvanized	1
AC Breaker	>=400 V 20 A, 3P	2
AC SPD	Class 2	1
EL Breaker	>=400 V 32 A, 4P >=0.3A	1
Production Meter	400 V Class <= 1	1
Bi-Dir. Meter	400 V Class <= 0.5	1



### Notes

- (1) All Cables & Wires should be Protected by UV Conduit and/or Covered Steel Cable Tray
- (2) DC Connectors (MC4) Should have IP68 Class

### Legend:



REVISIONS		
NO.	DRAWINGS	DATE
(1)		
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### Funded By:



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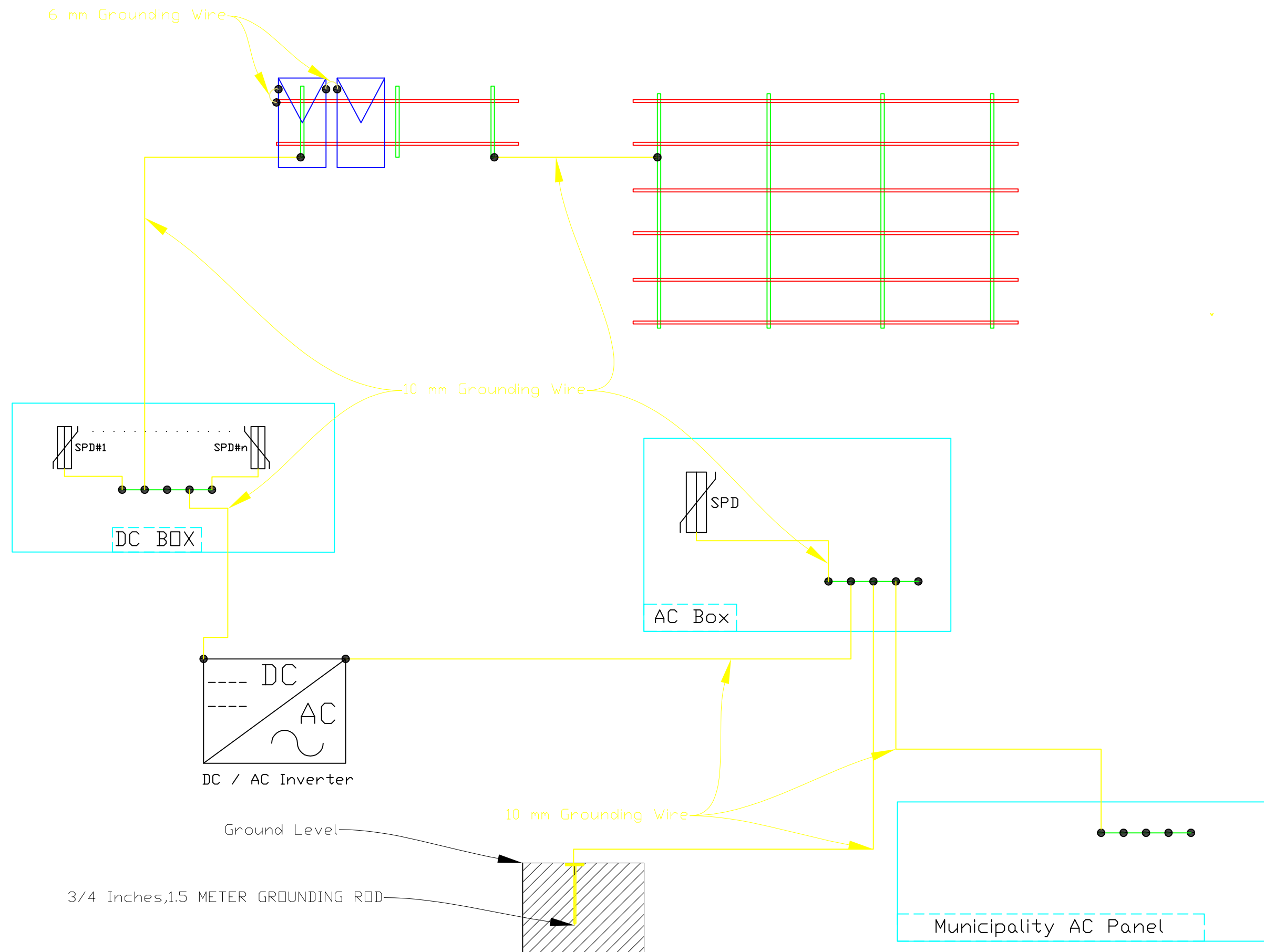
### Designed by:



Address: Dura - Hebron  
email: m.swell@palsec.net

Tel.: +972 56 894 6657  
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Drawing Title	POST OFFICE ELECTRIC DESIGN	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swell	Drawing No:
Checked by:	Mohammed A. Khalil	B3-03
Approved by:		
Coordinate Manager:		



- Notes**
- (1) System Grounding Resistance Should Be Less Than 3 Ohm
  - (2) Minimum Grounding Wire Between PV Modules is 6 mm<sup>2</sup>
  - (3) Minimum Grounding Wire Between Other Component is 10 mm<sup>2</sup>

**Legend:**

- PV Module
- Grounding Wire
- Grounding Busbar
- Grounding Rod
- SPD
- H-Beam
- V-Beam

REVISIONS		
NO.	DRAWINGS	DATE
(1)		
(2)		
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Enabel

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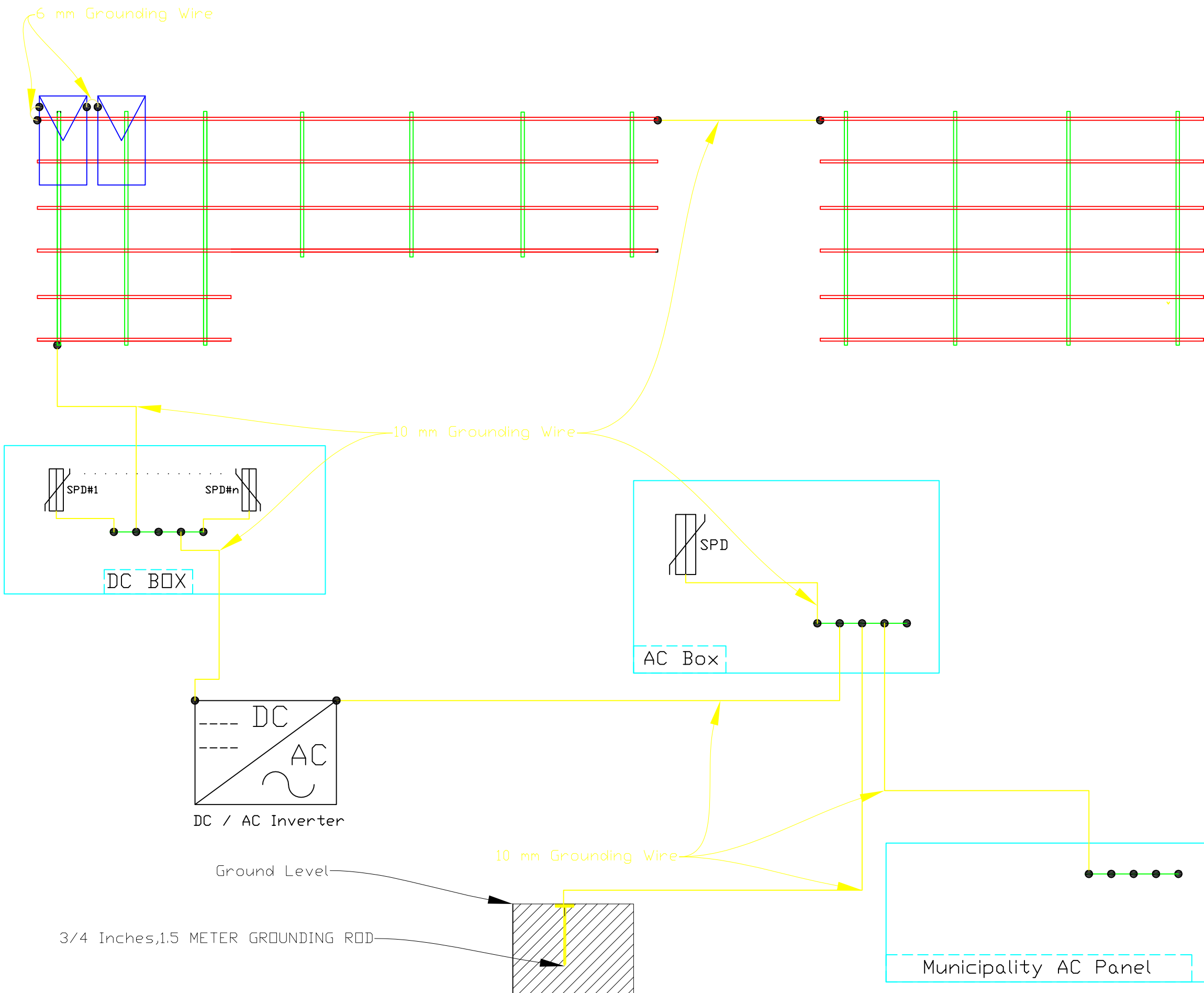
Premium

ENGINEERING & PLANNING

Address: Dura - Hebron  
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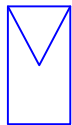






Tel.: +972 56 894 6657  
Fax: +972 (2) 2281 494

Drawing Title	MAIN OFFICE GROUNDING LAYOUT	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swelti	Drawing No: B1-04
Checked by:	Mohammed A. Khalil	
Approved by:		
Coordinate Manager:		



- Notes**
- (1) System Grounding Resistance Should Be Less Than 3 Ohm
  - (2) Minimum Grounding Wire Between PV Modules is 6 mm<sup>2</sup>
  - (3) Minimum Grounding Wire Between Other Component is 10 mm<sup>2</sup>

**Legend:**

-  PV Module
-  Grounding Wire
-  Grounding Busbar
-  Grounding Rod
-  SPD
-  H-Beam
-  V-Beam

REVISIONS		
NO.	DRAWINGS	DATE
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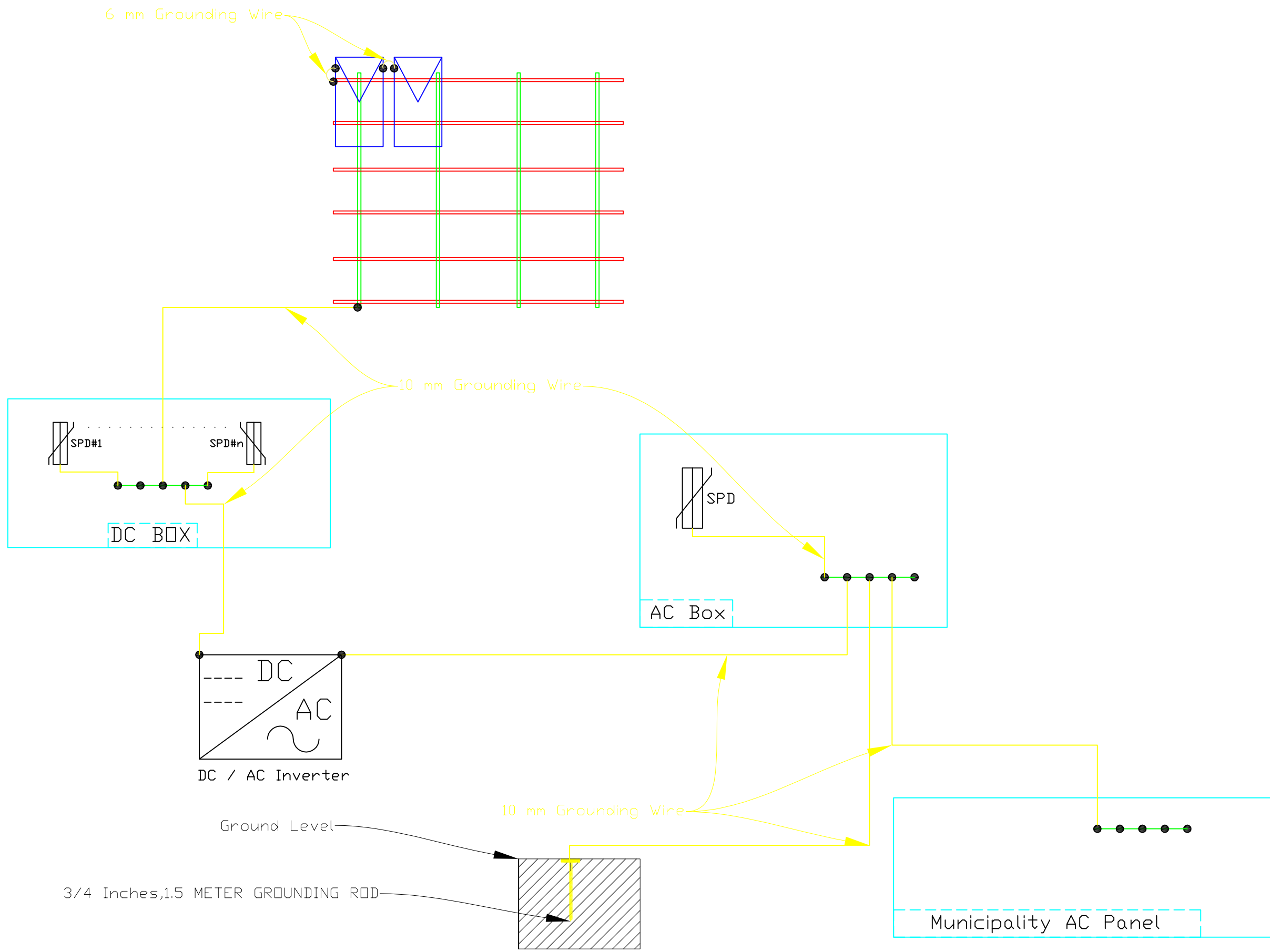
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Drawing Title	PUBLIC SERVICE GROUNDING LAYOUT	Date: 2/10/2023 Scale: 1:100
Designed by:	Mustafa S. Swilti	Drawing No:
Checked by:	Mohammed A. Khalil	B2-04
Approved by:		
Coordinate Manager:		



- ### Notes
- (1) System Grounding Resistance Should Be Less Than 3 Ohm
  - (2) Minimum Grounding Wire Between PV Modules is 6 mm<sup>2</sup>
  - (3) Minimum Grounding Wire Between Other Component is 10 mm<sup>2</sup>

### Legend:

- PV Module
- Grounding Wire
- Grounding Busbar
- Grounding Rod
- SPD
- H-Beam
- V-Beam

REVISIONS		
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Designed by:	Mustafa S. Swili	Drawing No: B3-04
Checked by:	Mohammed A. Khalil	
Approved by:		
Coordinate Manager:		