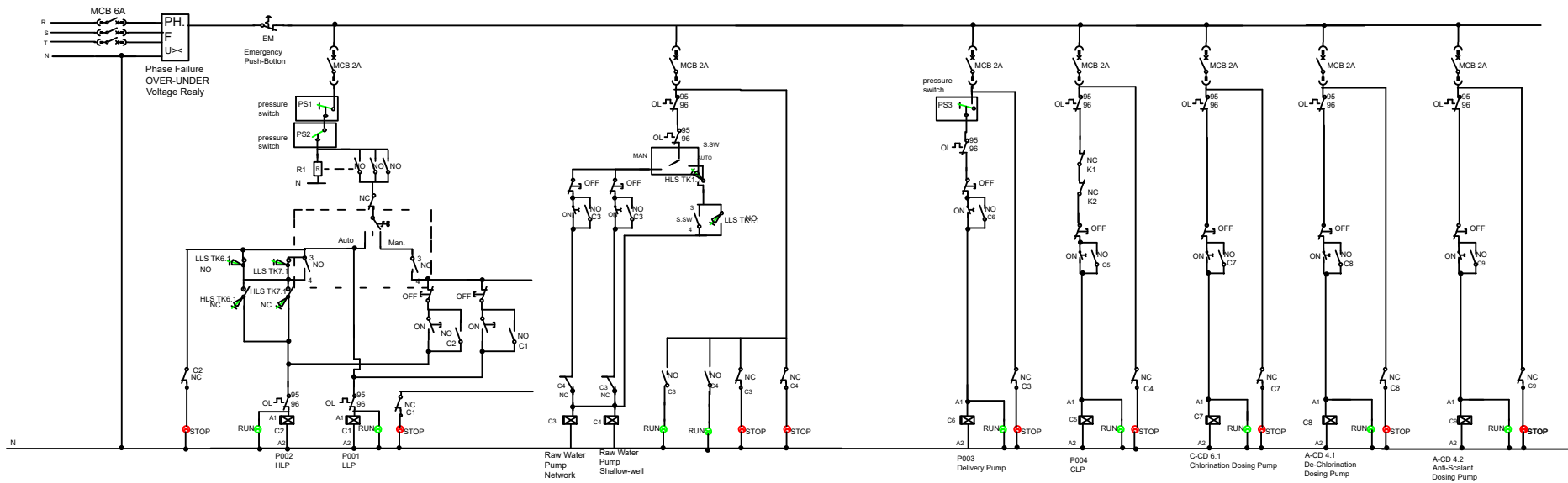
 ICRC Contracting Authority : ICRC - CICR IRAQ BAGHDAD Delegation	Designer : Eng. : Saleem Khaleel AL-Qaiem Position : WatHab Electrical Engineer E-mail : Skhaleelkareemhassn@icrc.org mobile : +964(0)7801432957	Location : AL-Rushayed Village Jabala District Coords : Governorate: Babylon Gov.	Project name : AL-Rushayed RO Unit Title : Solar Modules Distribution	Scale		Approval Signature AO1			
				Rev	Des.		Date		
				1			29.01.2025		
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				3					
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ICRC
 Contracting Authority :
 ICRC - CICR IRAQ
 BAGHDAD Delegation

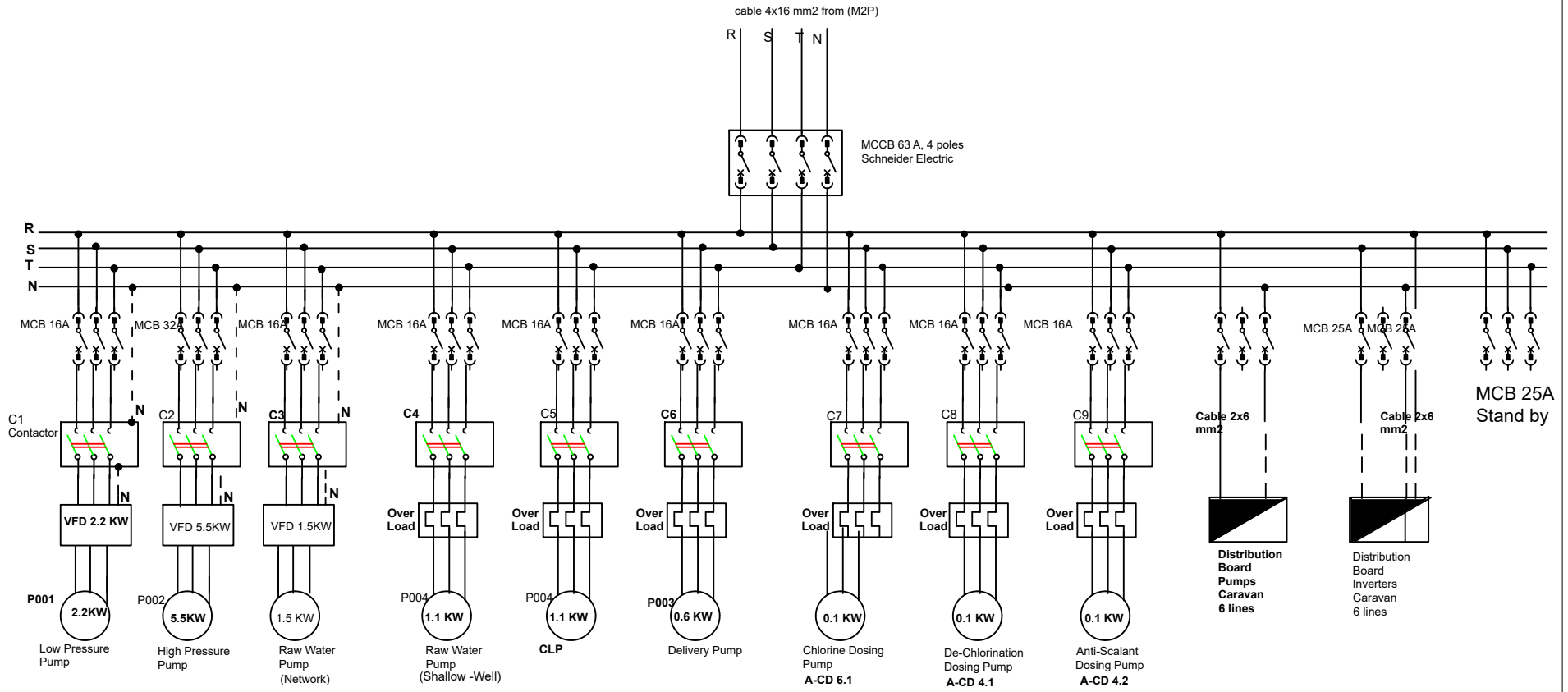
Designer :
 Eng. : Saleem Khaleel AL-Qaiem
 Position : WatHab Electrical Engineer
 E-mail : Skhaleelkareemhassn@icrc.org
 mobile : +964(0)7801432957


Location :
 Coords :
 Governorate :

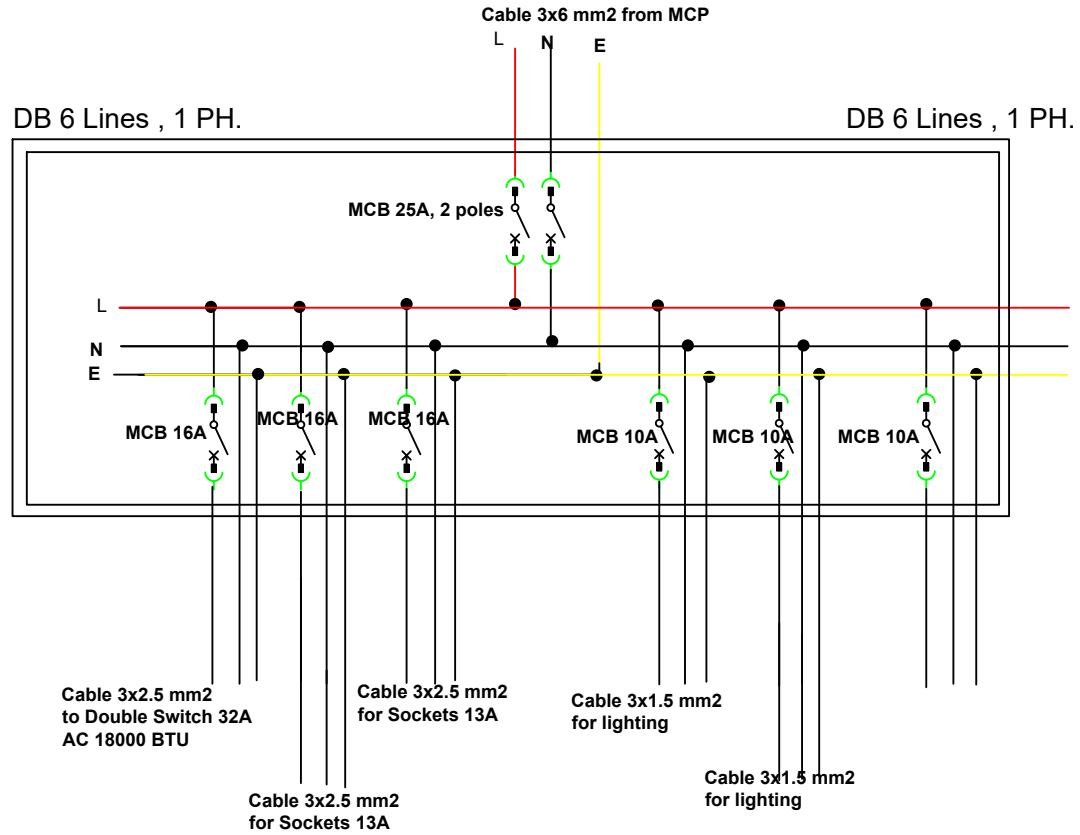
Project name :
 AL-Rushayed
 RO
 UNIT
 Title :
 Control Diagram
 for RO Unit
 AL-Rushayed
 village

Scale			Approval	Signature
Rev	Des.	Date		
1		20.03.2025		
2				
3				
4				

A02

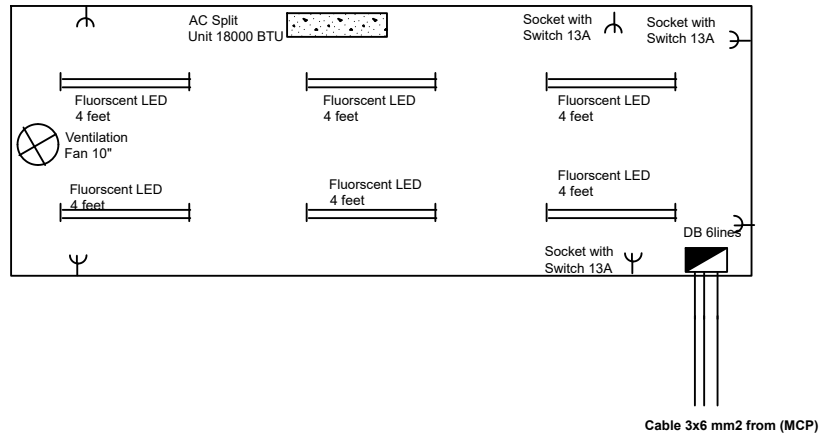


 Contracting Authority : ICRC - CICR IRAQ BAGHDAD Delegation	Designer : Eng. : Saleem Khaleel AL-Qaiem Position : WatHab Electrical Engineer E-mail : Skhaleelkareemhassn@icrc.org mobile : +964(0)7801432957	Location : AL-Rashaied Village Jbala District Coords : Location : Babylon Gov.	Project name : RO unit AL-Rushayed village Title:Power Diagram for (MCP)	Scale		<h1 style="text-align: center;">A03</h1>																									
				<table border="1"> <thead> <tr> <th>Rev</th> <th>Des.</th> <th>Date</th> <th>Approval</th> <th>Signature</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>20.03.2025</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Rev		Des.	Date	Approval	Signature	1		20.03.2025			2					3					4					
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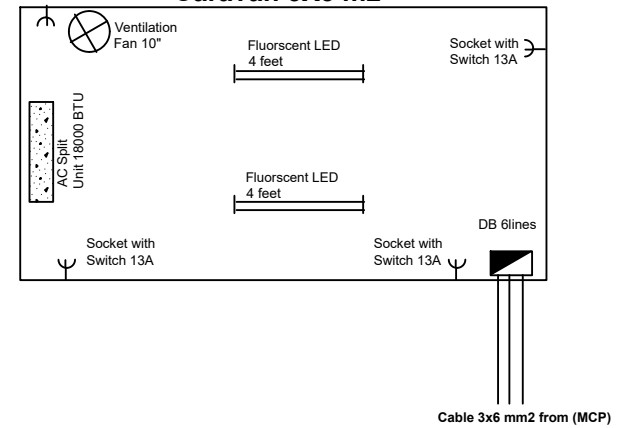



 ICRC Contracting Authority : ICRC - CICR IRAQ BAGHDAD Delegation	Designer : Eng. : Saleem Khaleel AL-Qaem Position : Wat-Hab Electrical Engineer E-mail : Skhaleelkareemhassn@icrc.org mobile : +964(0)7801432957	Location : AL-Rushayed village Jbala District Coords : Location : Babylon Governorate	Project name : RO Unit AL-Rushayed village Title : Distribution Board 6 lines in Inverters Caravan and Pumps Caravan	Scale		<h1>A04</h1>			
				Rev	Des.		Date	Approval	Signature
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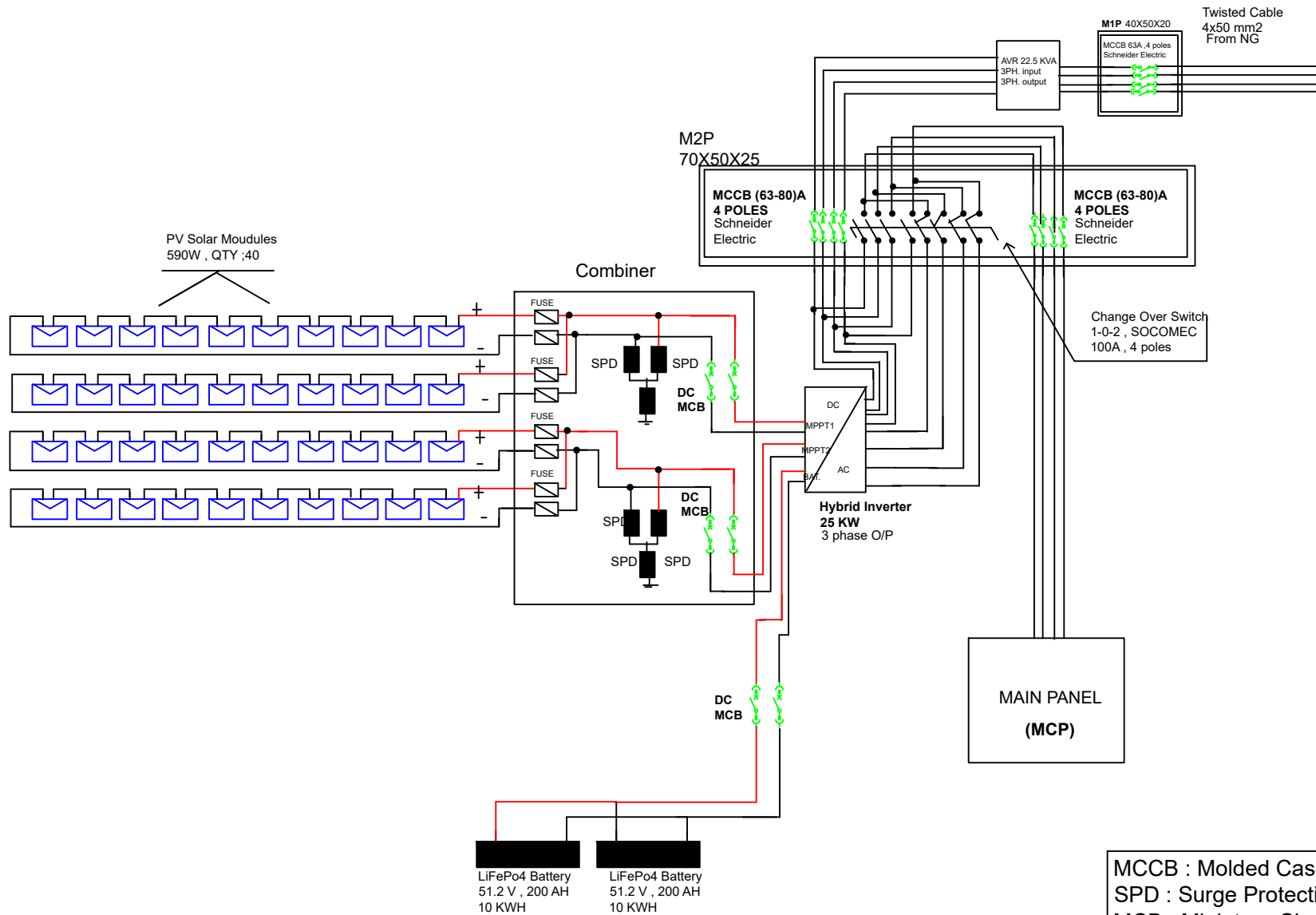
Caravan 6x3 m2




Caravan 3X3 m2

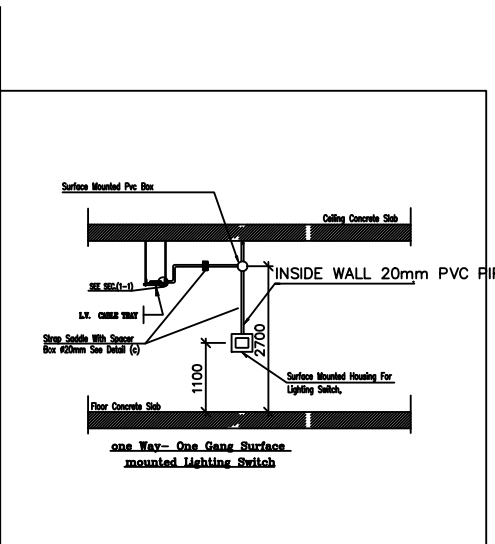
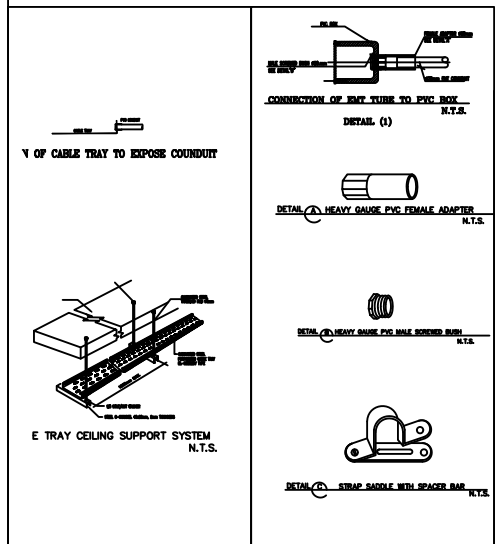
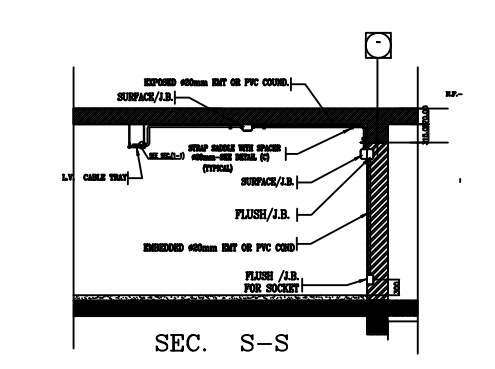
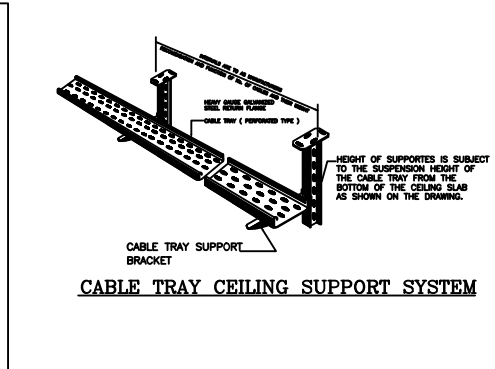
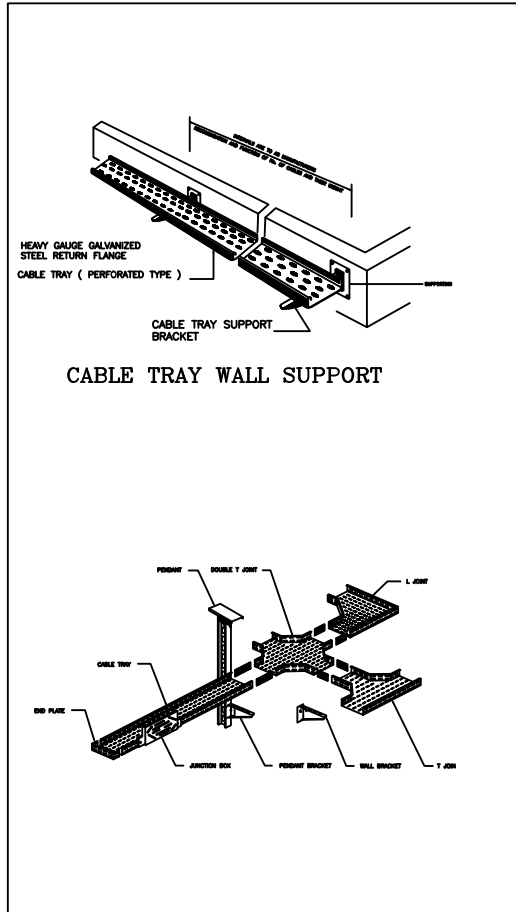


 ICRC Contracting Authority : ICRC - CICR IRAQ BAGHDAD Delegation	Designer : Eng. : Saleem Khaleel AL-Qaiem Position : Watt-Hab Electrical Engineer E-mail : Skhaleelkareemhassn@icrc.org mobile : +964(0)7801432957	AL-Rushayed village Location : Jbala District Coords : Location : Babylon Governorate	Project : RO UNIT in AL-Rushayed village	Scale		<h1>A05</h1>			
				Rev	Des.		Date	Approval	Signature
				1			30.01.2025		
				2					
				3					
			4						
			Title: Lighting and power devices						



MCCB : Molded Case Circuit Breaker
 SPD : Surge Protection Device
 MCB : Miniature Circuit Breaker

 Contracting Authority : ICRC - CICR IRAQ BAGHDAD Delegation	Designer : Eng. : Saleem Khaleel AL-Qaiem	Location : AL-Rushayed Village /Jbala District Coords : Location : Babylon Gov.	Project name : AL-Rushayed Village RO Unit	Scale		Approval Signature	A06	
	Position : WatHab Electrical Engineer E-mail : Skhaleelkareemhassn@icrc.org mobile : +964(0)7801432957		TITLE : POWER DIAGRAM FOR SOURCES(PV , BATTERIES BANK, & NG .)	Rev 1 2 3 4	Des. 			Date 23.03.2025



Contracting Authority :

 ICRC - CICR IRAQ

 BAGHDAD Delegation

Designer :

 Eng. : Saleem Khaleel AL-Qaiem

 Position : WatHab Electrical Engineer

 E-mail : Skhaleelkareemhassn@icrc.org

 mobile : +964(0)7801432957

Location : AL-Rushayed Village /Jbala District

 Coords :

 Location : Babylon Gov.

Project name :

 AL-Rushayed Village RO Unit

 Title : Cable Tray Details

Scale		Date	Approval	Signature
Rev	Des.			
1		23.03.2025		
2				
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A07

Performance of grid-connected PV

PVGIS-5 estimates of solar electricity generation:

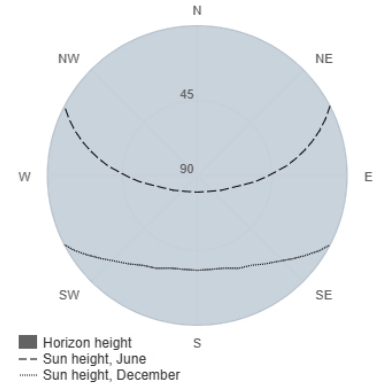
Provided inputs:

Latitude/Longitude: 32.717,44.704
 Horizon: Calculated
 Database used: PVGIS-SARAH3
 PV technology: Crystalline silicon
 PV installed: 21.7 kWp
 System loss: 14 %

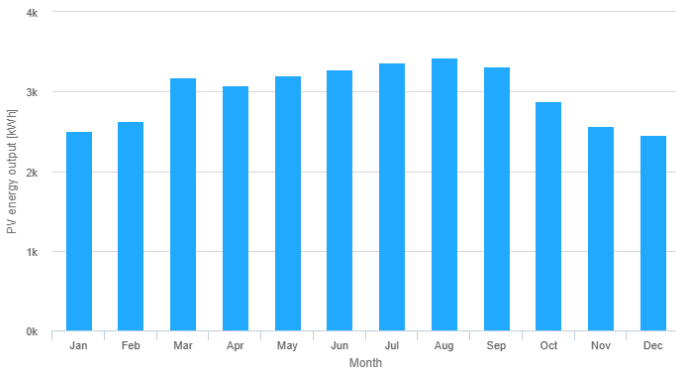
Simulation outputs

Slope angle: 31 (opt) °
 Azimuth angle: 0 °
 Yearly PV energy production: 35852.9 kWh
 Yearly in-plane irradiation: 2247.67 kWh/m²
 Year-to-year variability: 732.88 kWh
 Changes in output due to:
 Angle of incidence: -2.53 %
 Spectral effects: -0.58 %
 Temperature and low irradiance: -11.79 %
 Total loss: -26.49 %

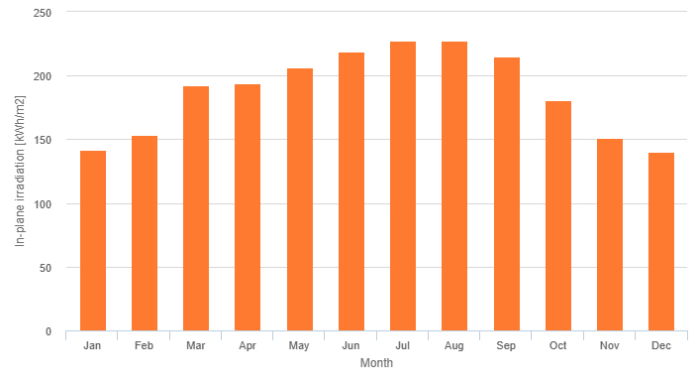
Outline of horizon at chosen location:



Monthly energy output from fix-angle PV system:



Monthly in-plane irradiation for fixed-angle:



Monthly PV energy and solar irradiation

Month	E_m	H(i)_m	SD_m
January	2502.9	141.8	184.1
February	2631.4	153.2	216.6
March	3172.9	192.2	152.9
April	3071.9	193.7	184.4
May	3202.1	206.5	160.2
June	3271.6	218.9	83.7
July	3363.6	227.2	60.7
August	3422.0	227.2	76.7
September	3311.4	215.0	107.0
October	2878.8	180.8	225.1
November	2568.0	151.0	283.7
December	2456.2	140.2	210.8

E_m: Average monthly electricity production from the defined system [kWh].

H(i)_m: Average monthly sum of global irradiation per square meter received by the modules of the given system [kWh/m²].

SD_m: Standard deviation of the monthly electricity production due to year-to-year variation [kWh].