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01/04/2026

Your PV system from Redbridge and Sons

Address of Installation

Wormeclyffe Lane
SN13 8AR



Project Description:
PV panels in feild

Project Overview



Figure: Overview Image, 3D Design

PV System

3D, Grid-connected PV System with Electrical Appliances and Battery Systems

Climate Data	Corsham, GBR (2001 - 2020)
Values source	Meteonorm 9.0 (i)
PV Generator Output	10.8 kWp
PV Generator Surface	48.0 m ²
Number of PV Modules	24
Number of Inverters	1
No. of battery systems	1

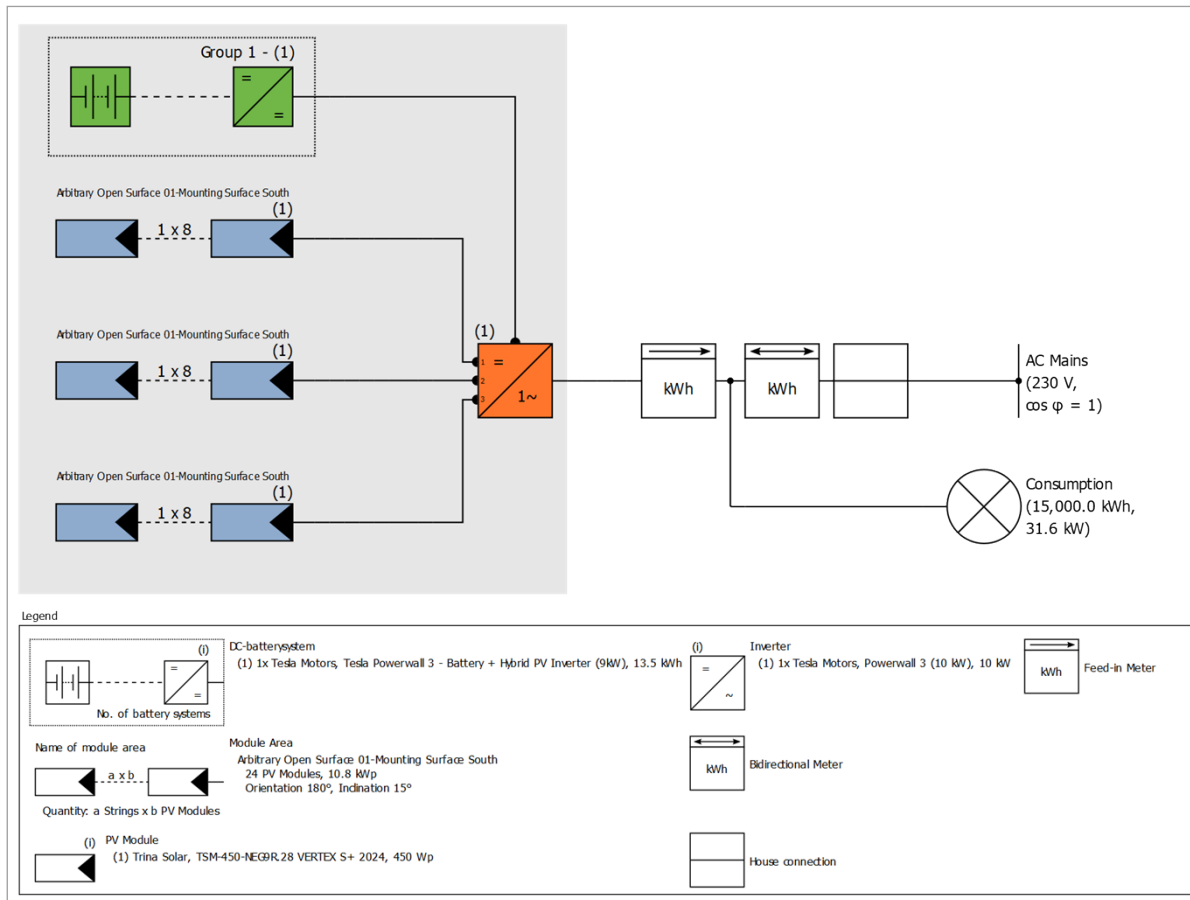


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	10.80 kWp
Spec. Annual Yield	1,065.14 kWh/kWp
Performance Ratio (PR)	92.87 %
Yield Reduction due to Shading	2.2 %
PV Generator Energy (AC grid) with battery	11,206 kWh/Year
Direct Own Use	8,396 kWh/Year
Grid Export	2,810 kWh/Year
Own Power Consumption	74.9 %
CO ₂ Emissions avoided	2,189 kg / year
Level of Self-sufficiency	55.9 %

Set-up of the System

Overview

System Data

Type of System	3D, Grid-connected PV System with Electrical Appliances and Battery Systems
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Climate Data

Location	Corsham, GBR (2001 - 2020)
Values source	Meteonorm 9.0 (i)
Data resolution	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Hofmann
- Irradiance onto tilted surface	Hay & Davies

Consumption

Total Consumption	15000 kWh
2-person household with one child (2 remote workers)	15000 kWh
Load Peak	31.6 kW

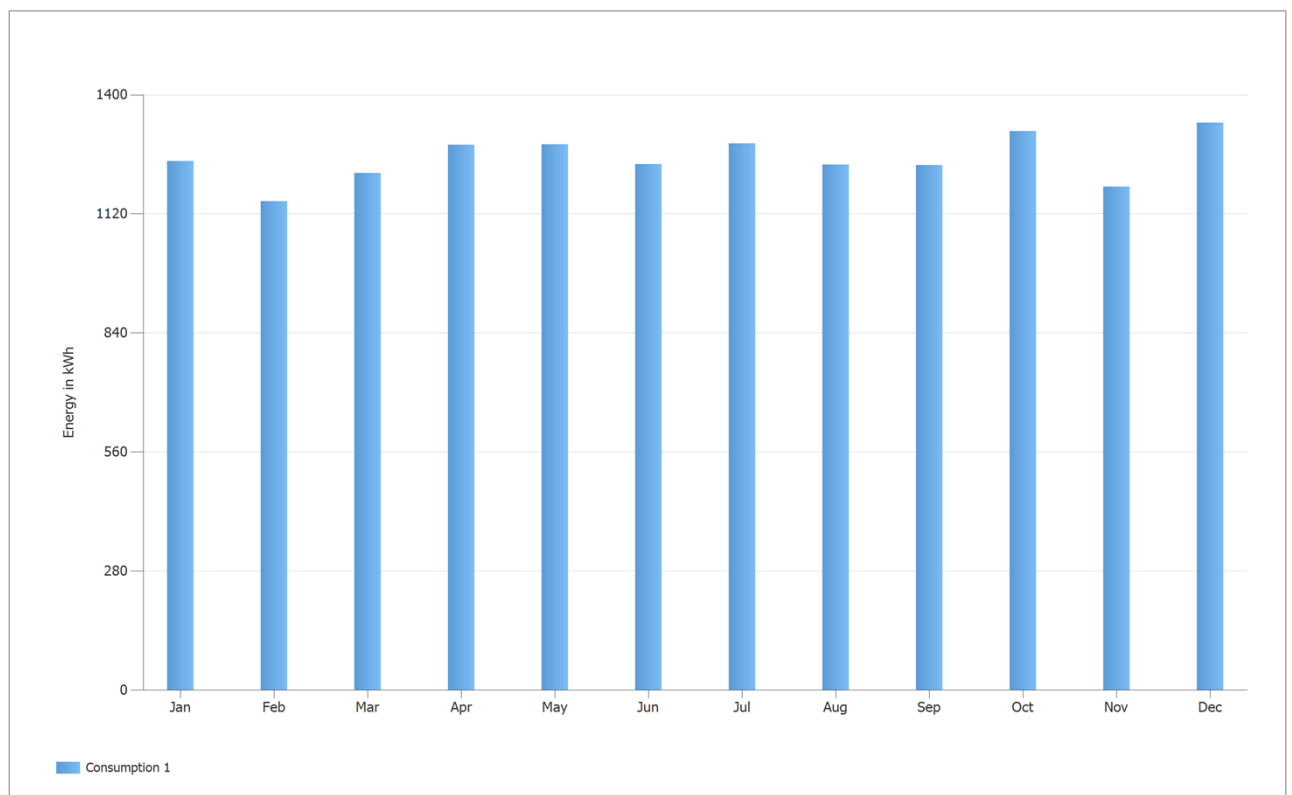


Figure: Consumption

Module Areas

1. Module Area - Arbitrary Open Surface 01-Mounting Surface South

PV Generator, 1. Module Area - Arbitrary Open Surface 01-Mounting Surface South

Name	Arbitrary Open Surface 01-Mounting Surface South
PV Modules	24 x TSM-450-NEG9R.28 VERTEX S+ 2024 (v2)
Manufacturer	Trina Solar
Inclination	15 °
Orientation	South 180 °
Installation Type	Mounted - Roof GROUND
PV Generator Surface	48.0 m ²

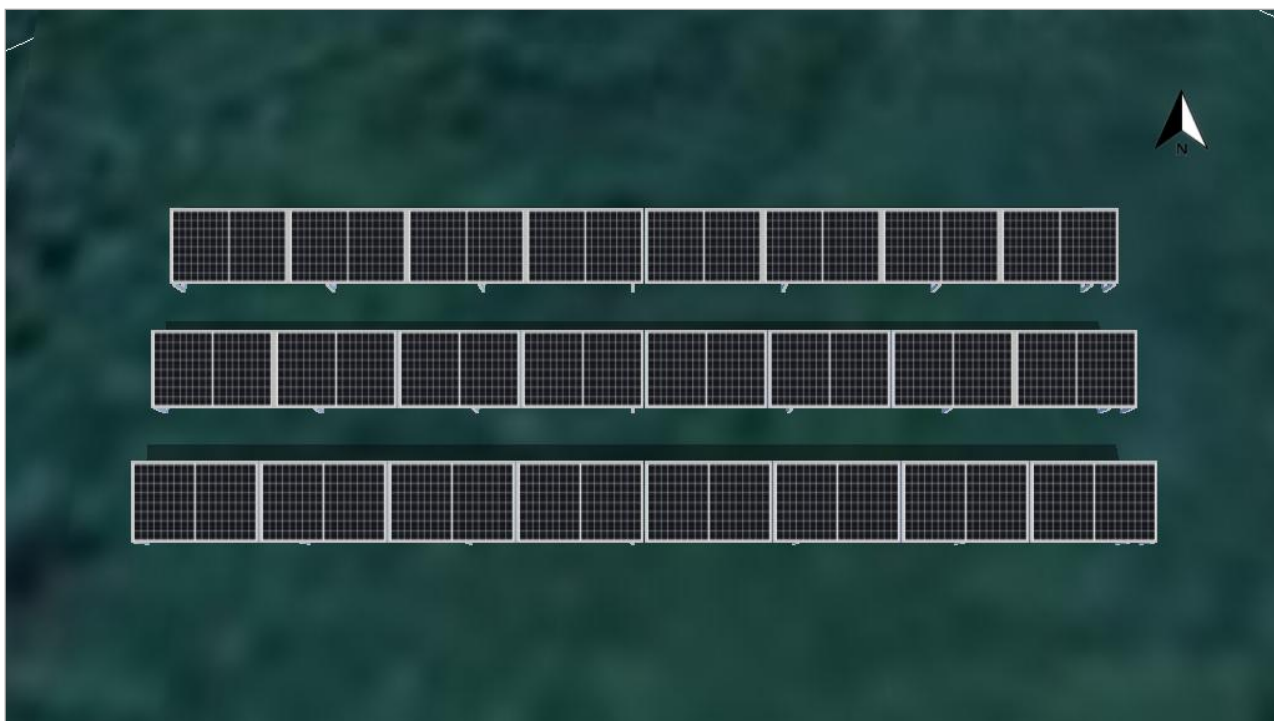


Figure: 1. Module Area - Arbitrary Open Surface 01-Mounting Surface South

Horizon Line, 3D Design

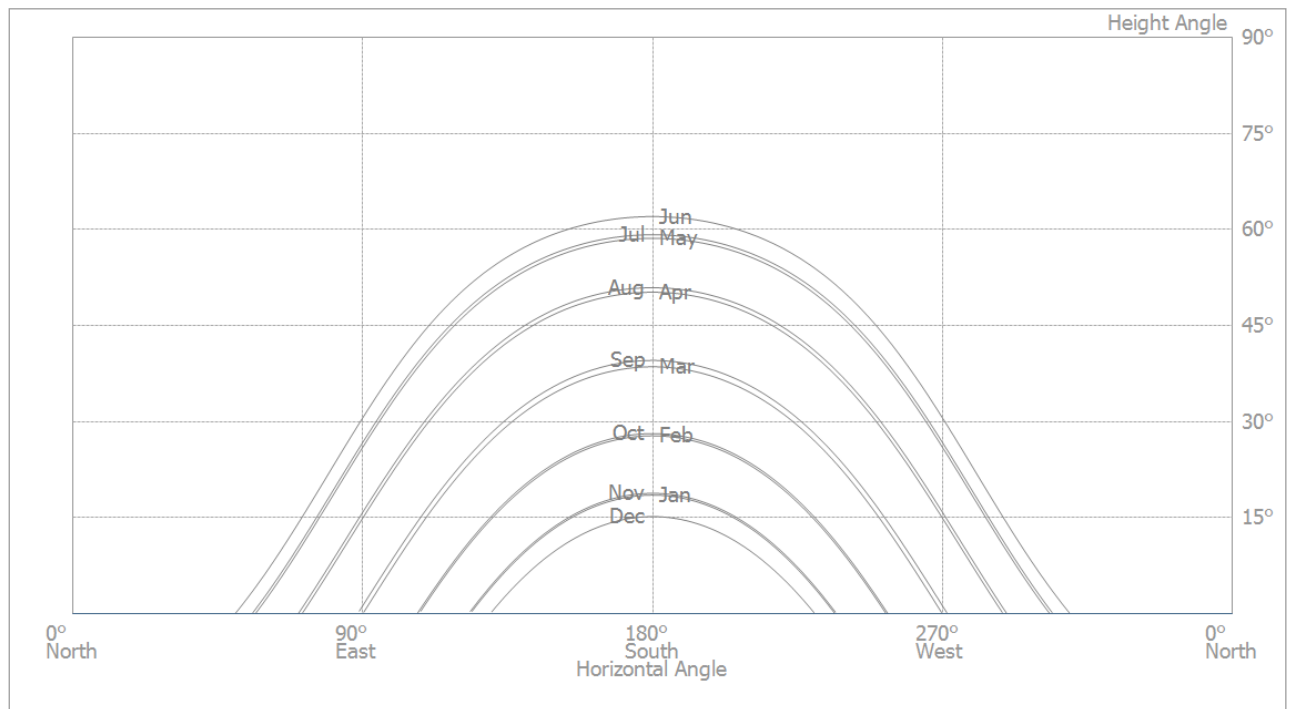


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1

Module Area	Arbitrary Open Surface 01-Mounting Surface South
Inverter 1	
Model	Powerwall 3 (10 kW) (v4)
Manufacturer	Tesla Motors
Quantity	1
Sizing Factor	108 %
Configuration	MPP 1: 1 x 8
	MPP 2: 1 x 8
	MPP 3: 1 x 8

AC Mains

AC Mains

Number of Phases	1
Mains voltage between phase and neutral	230 V
Displacement Power Factor (cos phi)	+/- 1

Battery Systems

Battery System - Group 1

Model	Tesla Powerwall 3 - Battery + Hybrid PV Inverter (9kW) (v3)
Manufacturer	Tesla Motors
Quantity	1
Battery Inverter	
Type of coupling	DC intermediate circuit coupling
Nominal output	5 kW
Battery	
Manufacturer	Tesla Motors
Model	Powerwall 3 (v3)
Quantity	1
Battery Energy	13.5 kWh
Battery Type	Lithium iron phosphate

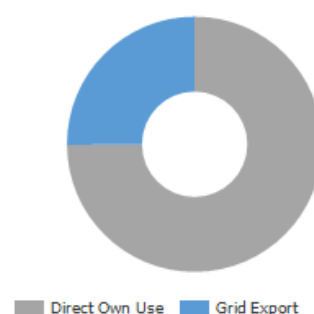
Simulation Results

Results Total System

PV System

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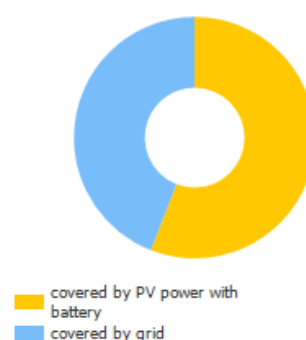
PV Generator Energy (AC grid) with battery



Appliances

Appliances	15,000 kWh/Year
Standby Consumption (Inverter)	16 kWh/Year
Total Consumption	15,016 kWh/Year
covered by PV power with battery	8,396 kWh/Year
covered by grid	6,620 kWh/Year
Solar Fraction	55.9 %

Total Consumption



Battery System

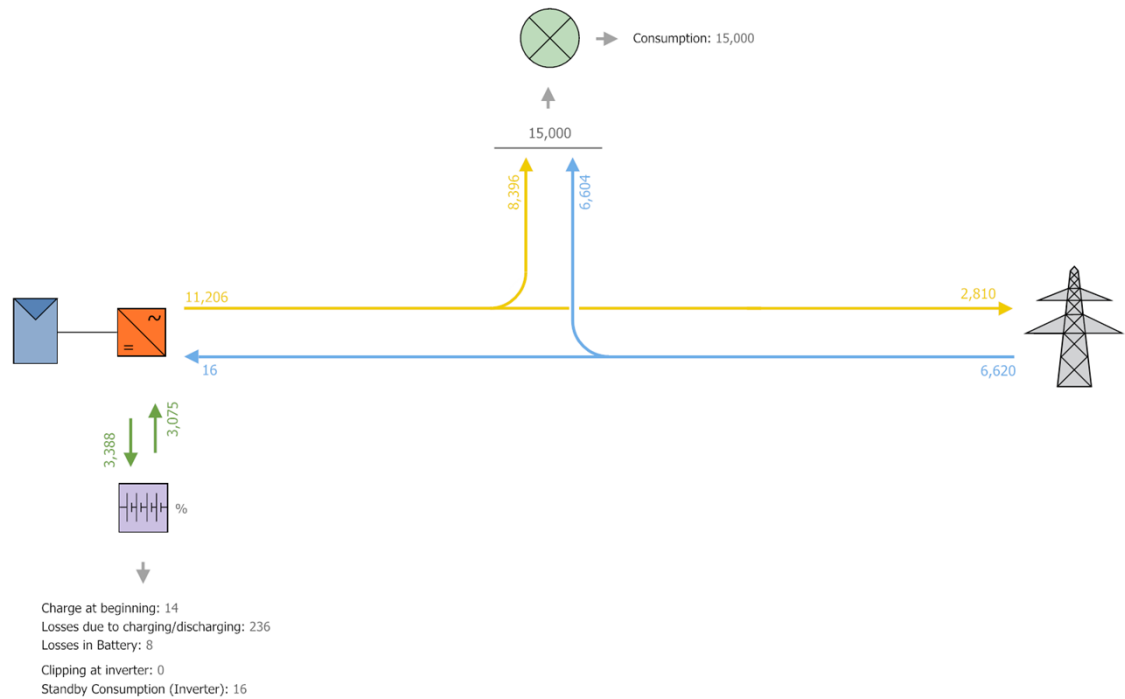
Charge at beginning	14 kWh
Battery Charge (PV System)	3,388 kWh/Year
Battery Energy for the Covering of Consumption	3,075 kWh/Year
Battery discharge into the grid	83 kWh/Year
Losses due to charging/discharging	236 kWh/Year
Losses in Battery	8 kWh/Year
Cycle Load	7.5 %
Service Life	13 Years

Level of Self-sufficiency

Total Consumption	15,016 kWh/Year
covered by grid	6,620 kWh/Year
Level of Self-sufficiency	55.9 %

Energy Flow Graph

Project: Hooft



All values in kWh
Small deviations in the totals can occur due to rounding
created with PV*SOL

Figure: Energy flow

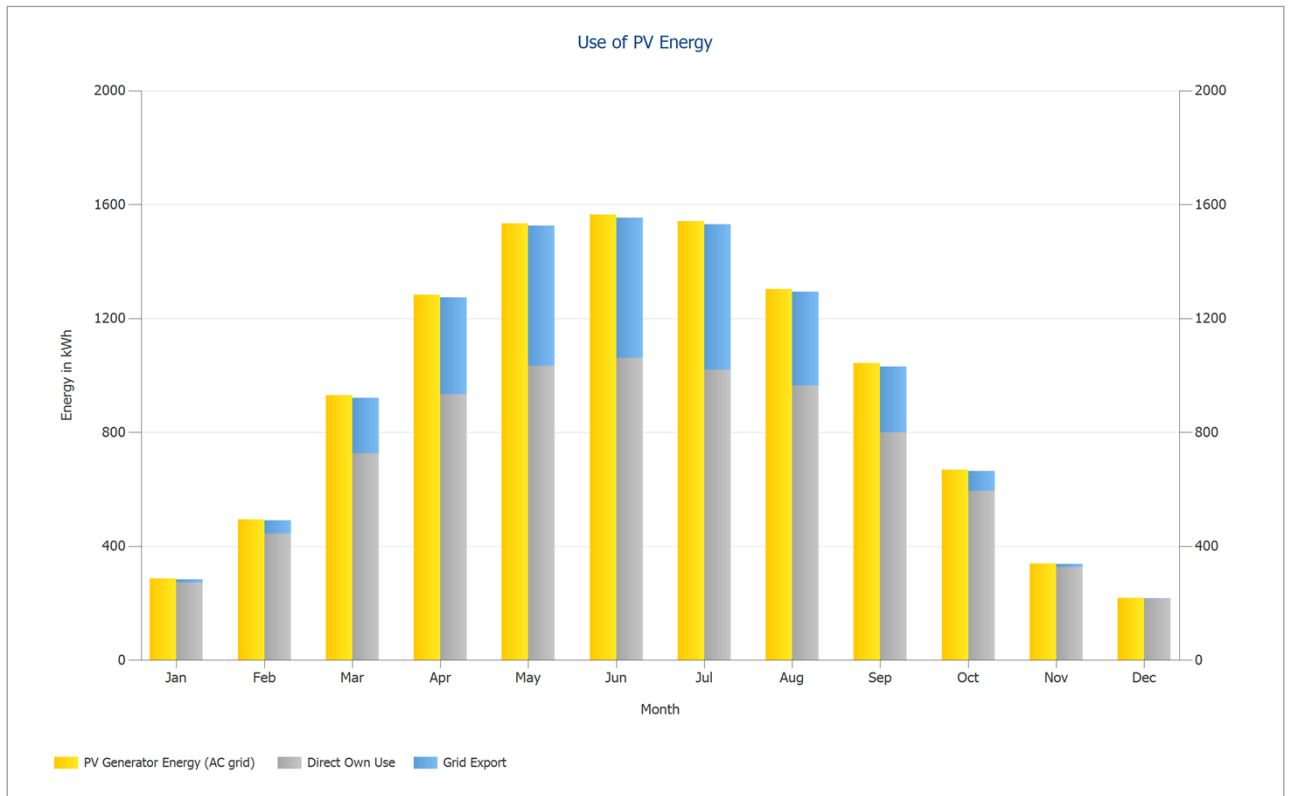


Figure: Use of PV Energy

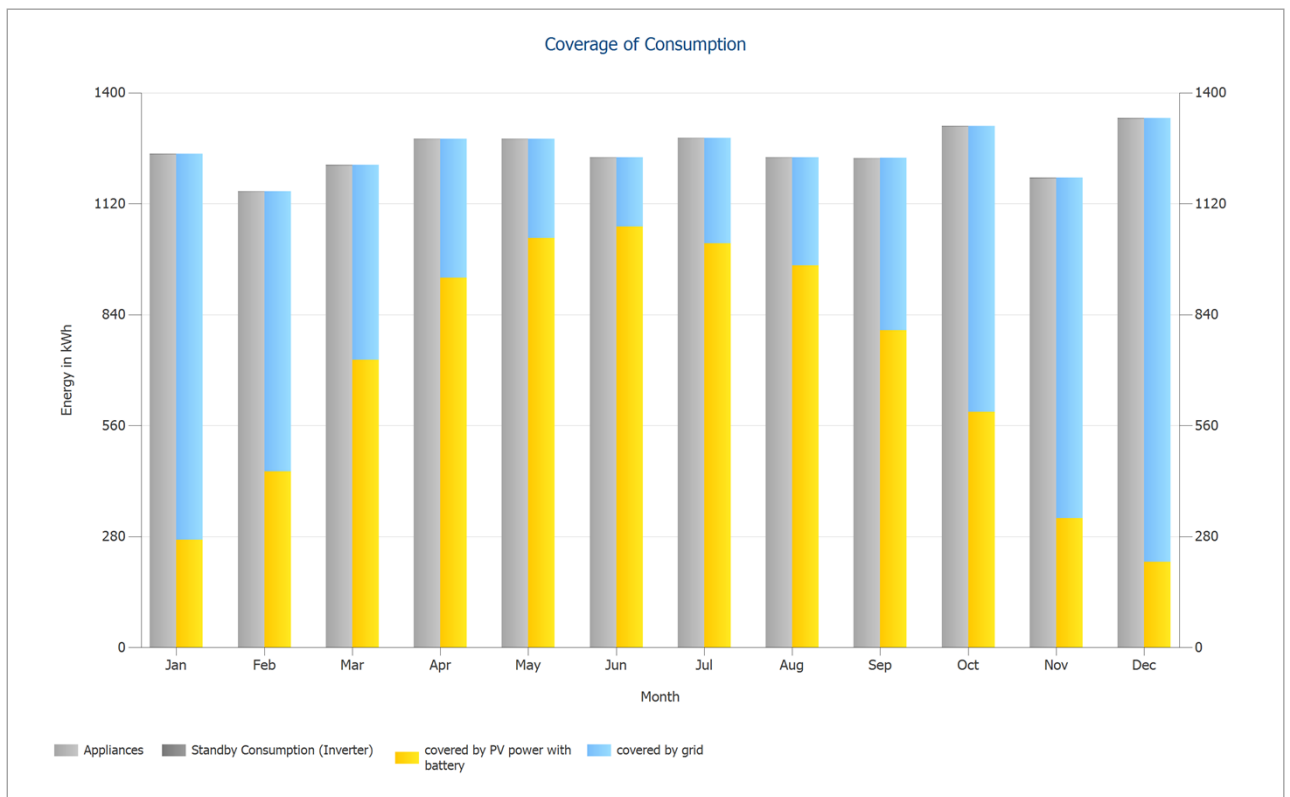


Figure: Coverage of Consumption

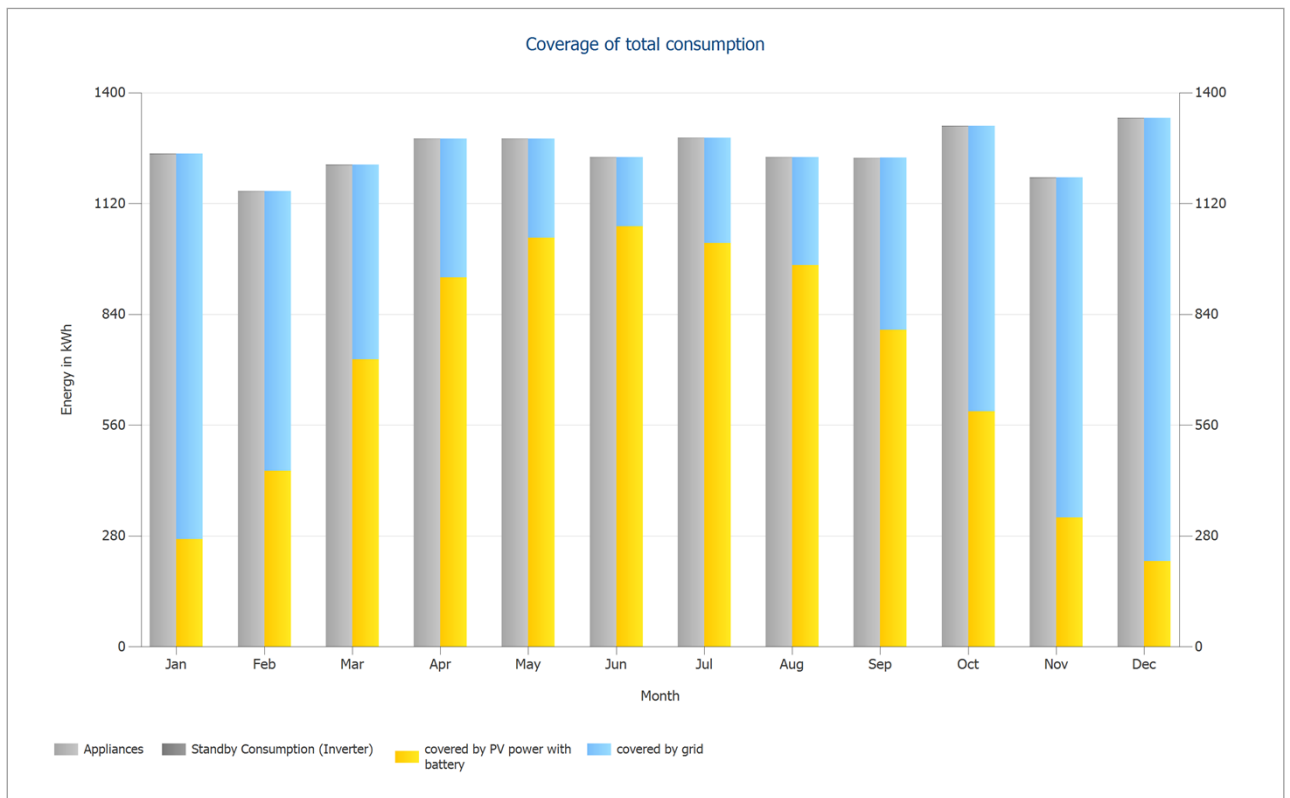


Figure: Coverage of total consumption

Plans and parts list

Circuit Diagram

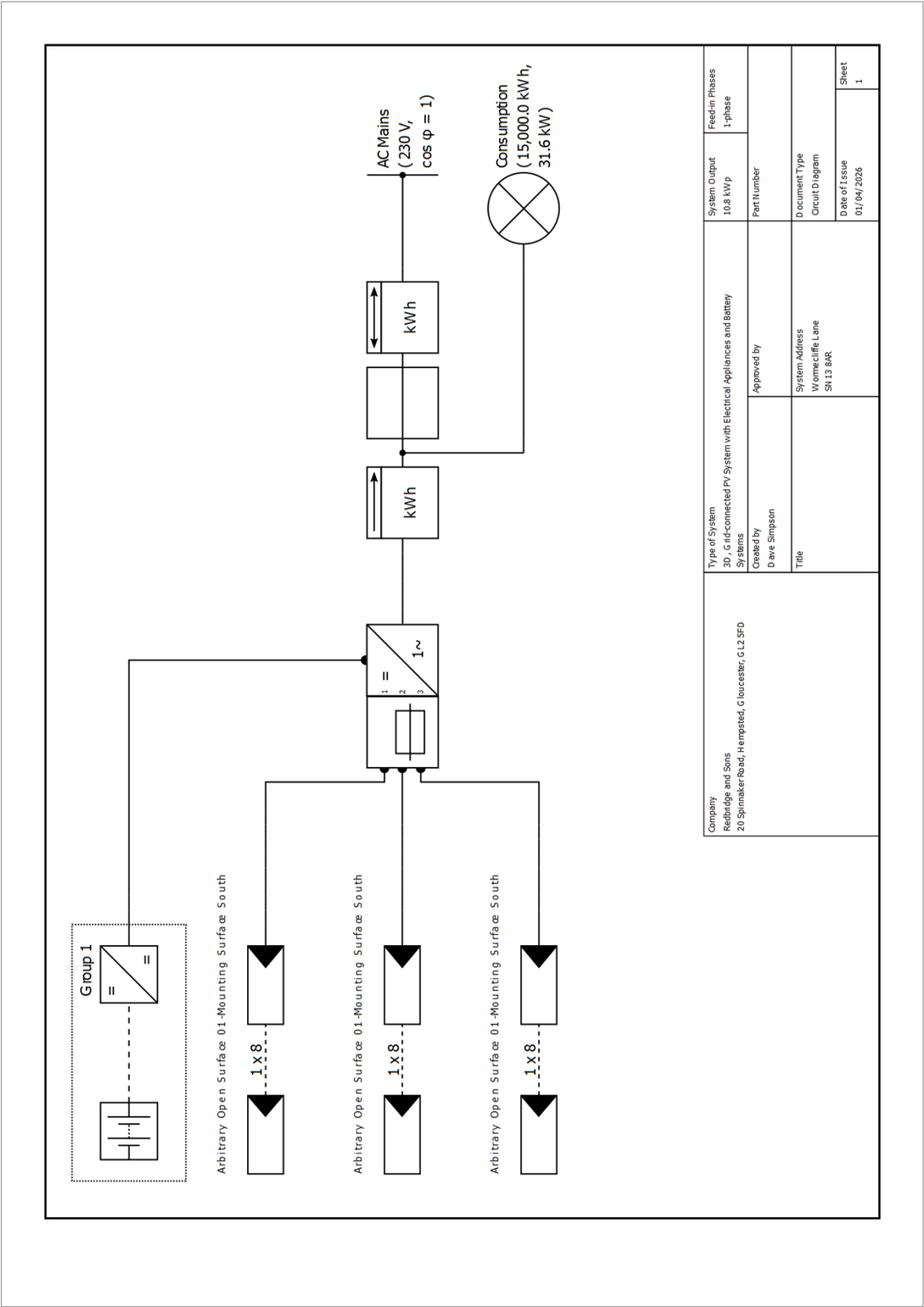


Figure: Circuit Diagram

Overview plan

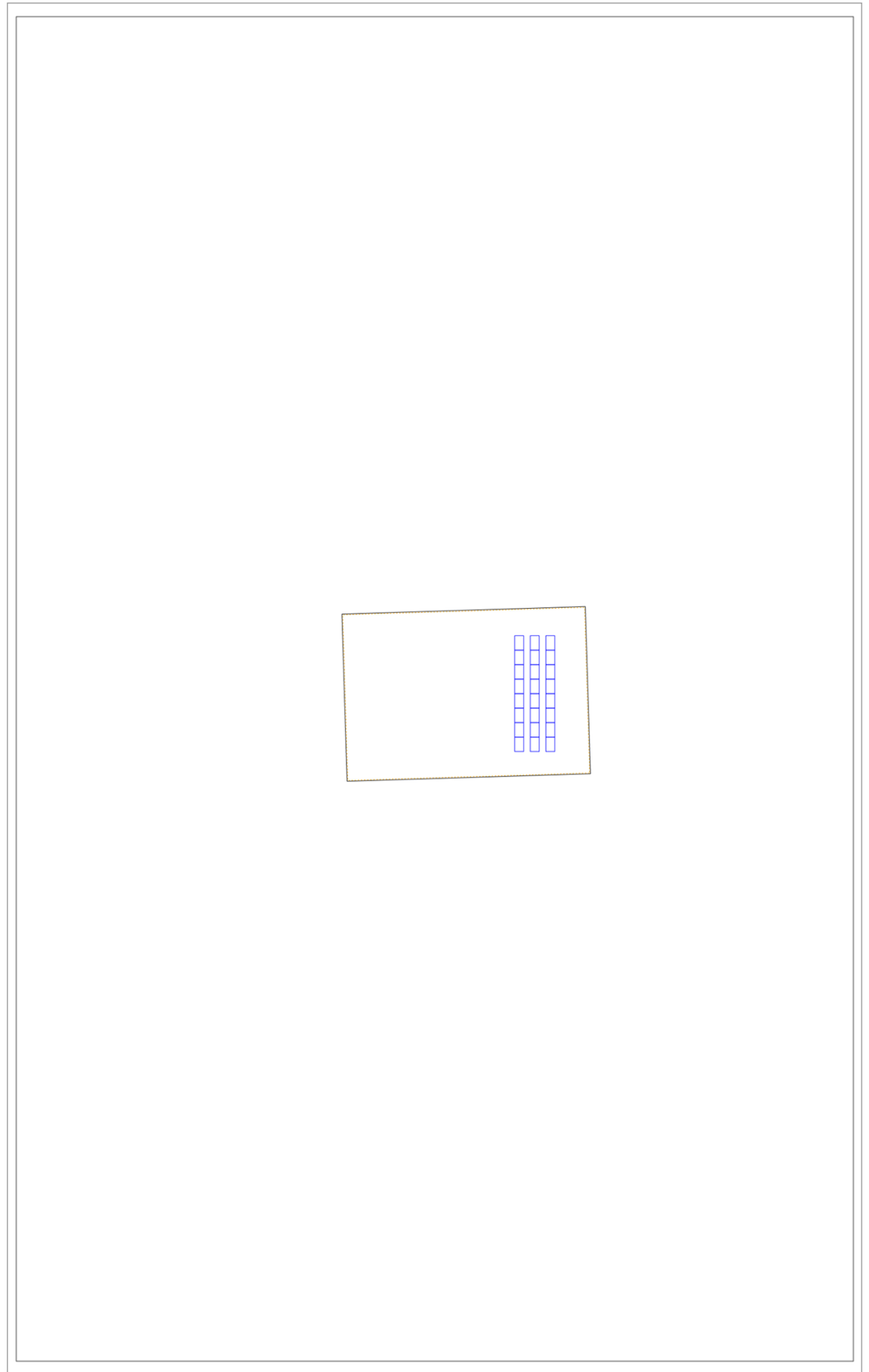


Figure: Overview plan

Dimensioning Plan

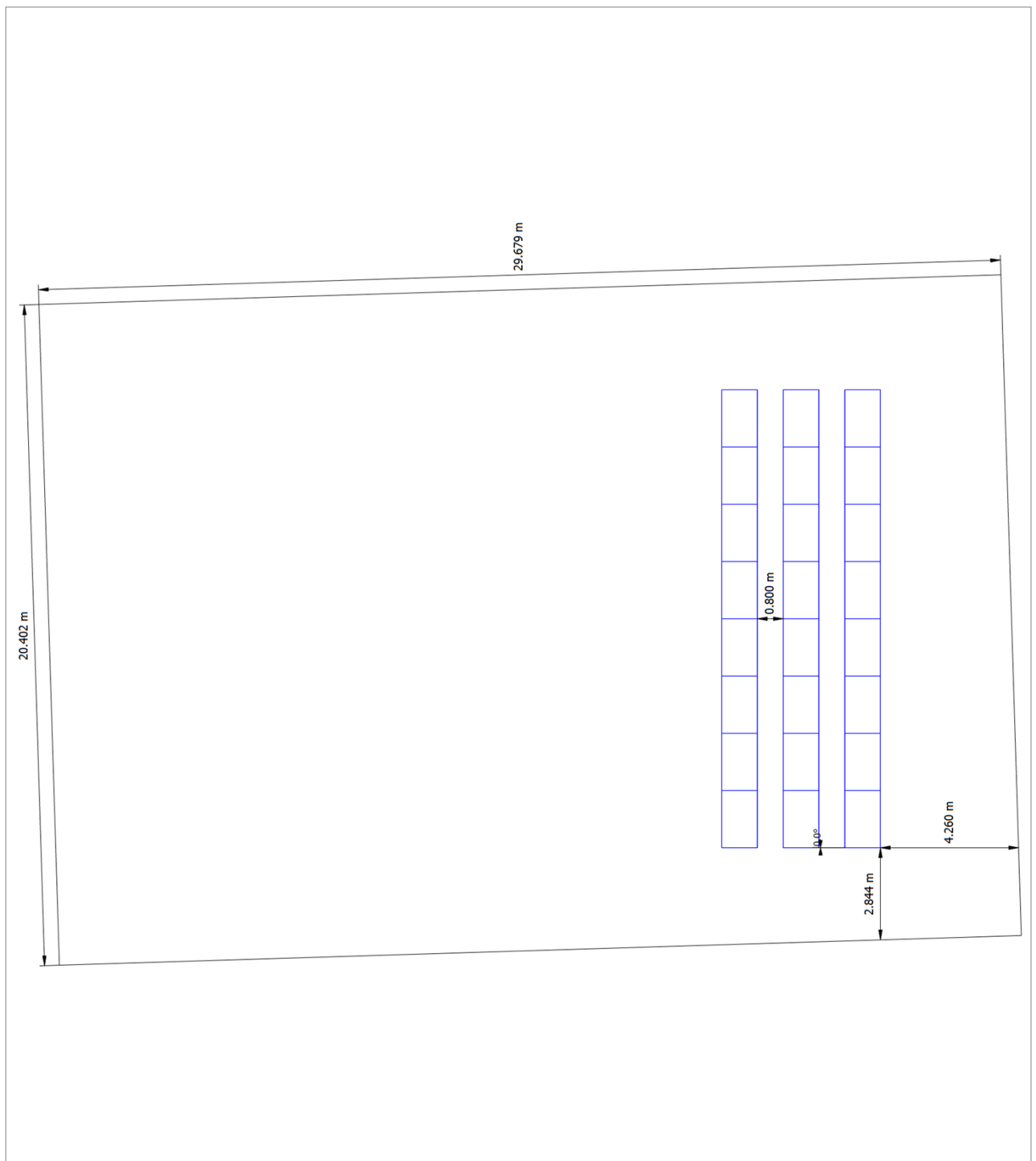


Figure: Arbitrary Open Surface 01 - Mounting Surface South

String Plan

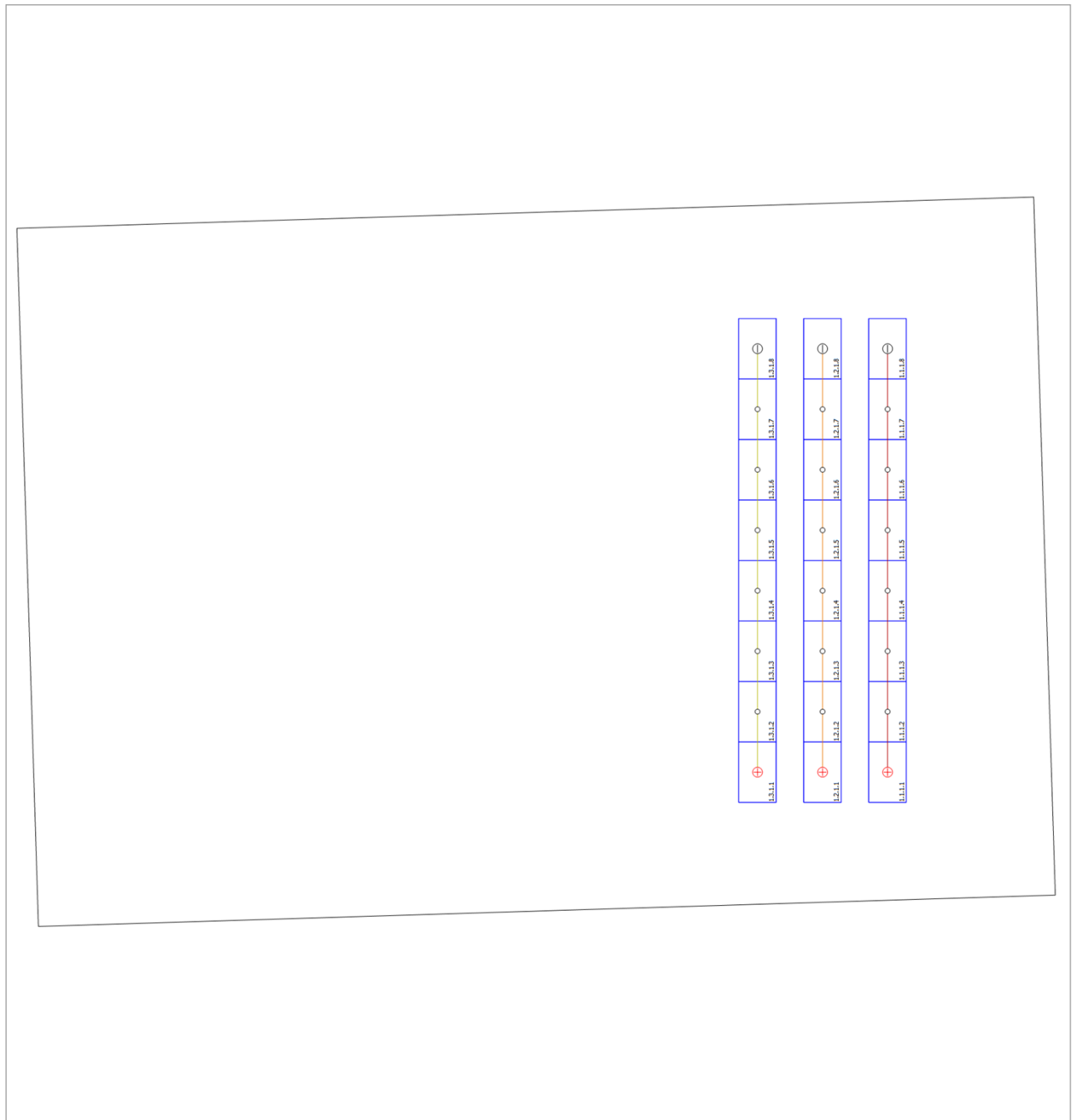


Figure: Arbitrary Open Surface 01 - Mounting Surface South

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		Trina Solar	TSM-450-NEG9R.28 VERTEX S+ 2024	24	Piece
2	Inverter		Tesla Motors	Powerwall 3 (10 kW)	1	Piece
3	Battery System		Tesla Motors	Tesla Powerwall 3 - Battery + Hybrid PV Inverter (9kW)	1	Piece
4	Components			Feed-in Meter	1	Piece
5	Components			House connection	1	Piece
6	Components			Bidirectional Meter	1	Piece