Eden Sustainable Ltd
28 Queen Street
London
EC4R 1BB

Contact person:

E-Mail: enquiries@edensustainable.co.uk

Project Name: Reliance Worldwide Company

12/12/2022

Your PV system from Eden Sustainable Ltd

Address of Installation

west drayton
UB7 8JL

Project Overview

Figure: Overview Image, 3D Design

PV System

3D, Grid-connected PV System with Electrical Appliances

Climate Data	Uxbridge, GBR (1996 - 2015)	
Values source	Meteonorm 8.1(i)	
PV Generator Output	60.72	kWp
PV Generator Surface	294.4	m²
Number of PV Modules	132	
Number of Inverters	1	

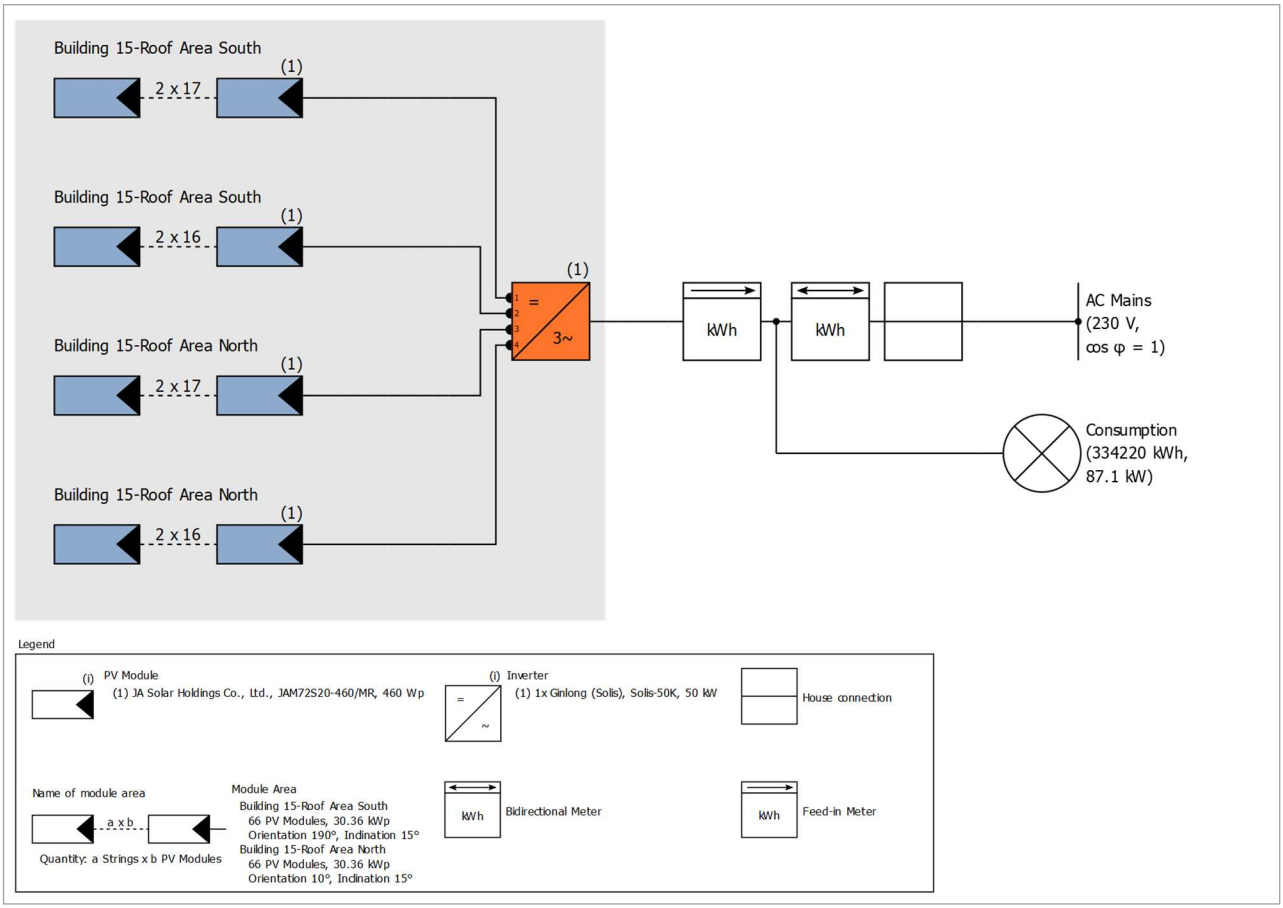


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	60.72	kWp
Spec. Annual Yield	850.93	kWh/kWp
Performance Ratio (PR)	86.21	%
Yield Reduction due to Shading	0.1	%/Year
PV Generator Energy (AC grid)	51,681	kWh/Year
Own Consumption	46,687	kWh/Year
Down-regulation at Feed-in Point	0	kWh/Year
Grid Feed-in	4,994	kWh/Year
Own Power Consumption	90.3	%
CO_2 Emissions avoided	10,024	kg / year
Level of Self-sufficiency	14.0	%

The results have been calculated with a mathematical model calculation from Valentin Software GmbH (PV*SOL algorithms). The actual yields from the solar power system may differ as a result of weather variations, the efficiency of the modules and inverter, and other factors.

Set-up of the System

Overview

System Data

Type of System	3D, Grid-connected PV System with Electrical Appliances

Climate Data

Location	Uxbridge, GBR (1996 - 2015)
Values source	Meteonorm 8.1(i)
Resolution of the data	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Hofmann
- Irradiance onto tilted surface	Hay & Davies

Consumption

Total Consumption	334220 kWh
2000001629245	334220 kWh
Load Peak	87.1 kW

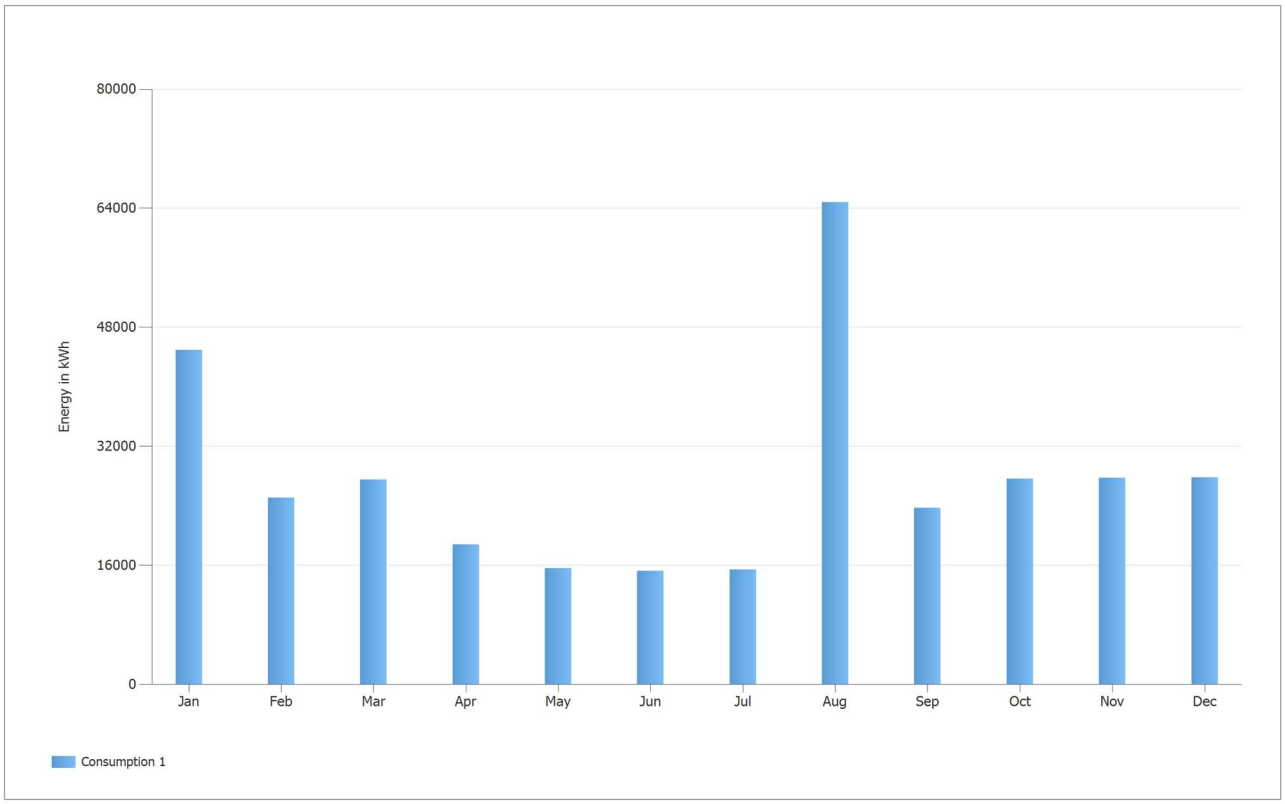


Figure: Consumption

Module Areas

1. Module Area - Building 15-Roof Area South

PV Generator, 1. Module Area - Building 15-Roof Area South

Name	Building 15-Roof Area South
PV Modules	66 x JAM72S20-460/MR (v5)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	15 °
Orientation	South 190 °
Installation Type	Roof parallel
PV Generator Surface	147.2 m²

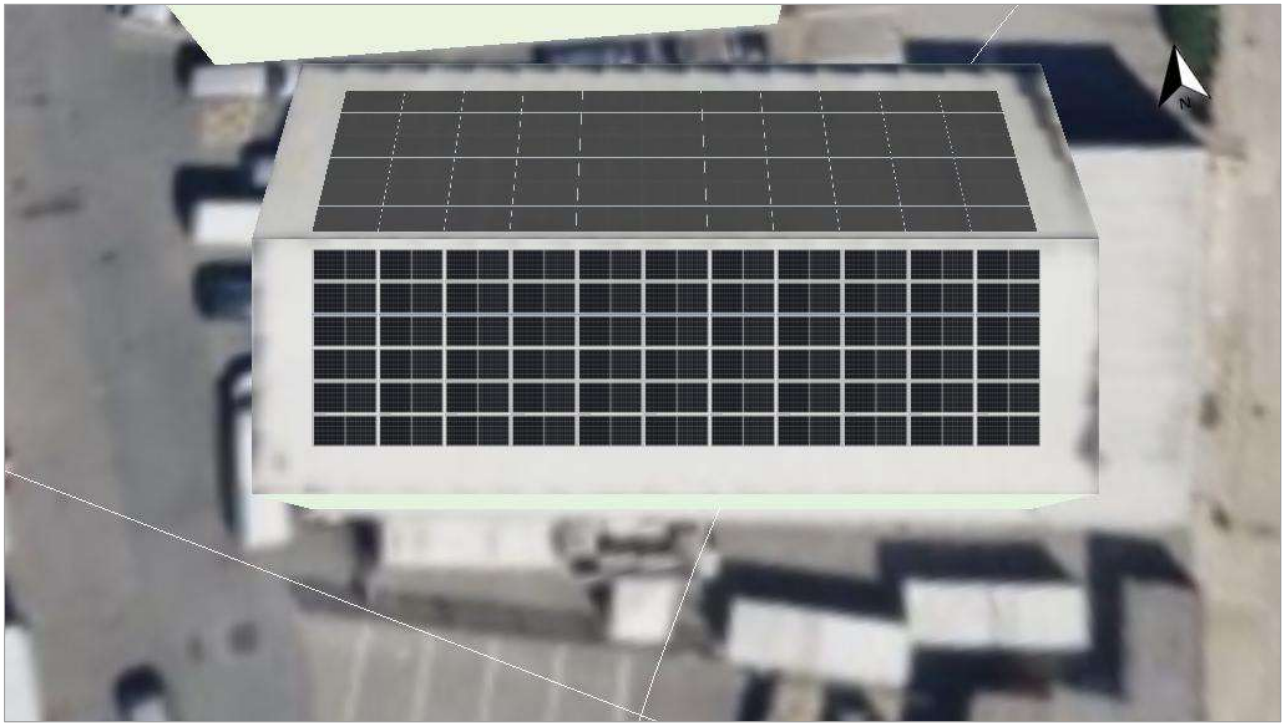


Figure: 1. Module Area - Building 15-Roof Area South

2. Module Area - Building 15-Roof Area North

PV Generator, 2. Module Area - Building 15-Roof Area North

Name	Building 15-Roof Area North
PV Modules	66 x JAM72S20-460/MR (v5)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	15 °
Orientation	North 10 °
Installation Type	Roof parallel
PV Generator Surface	147.2 m²

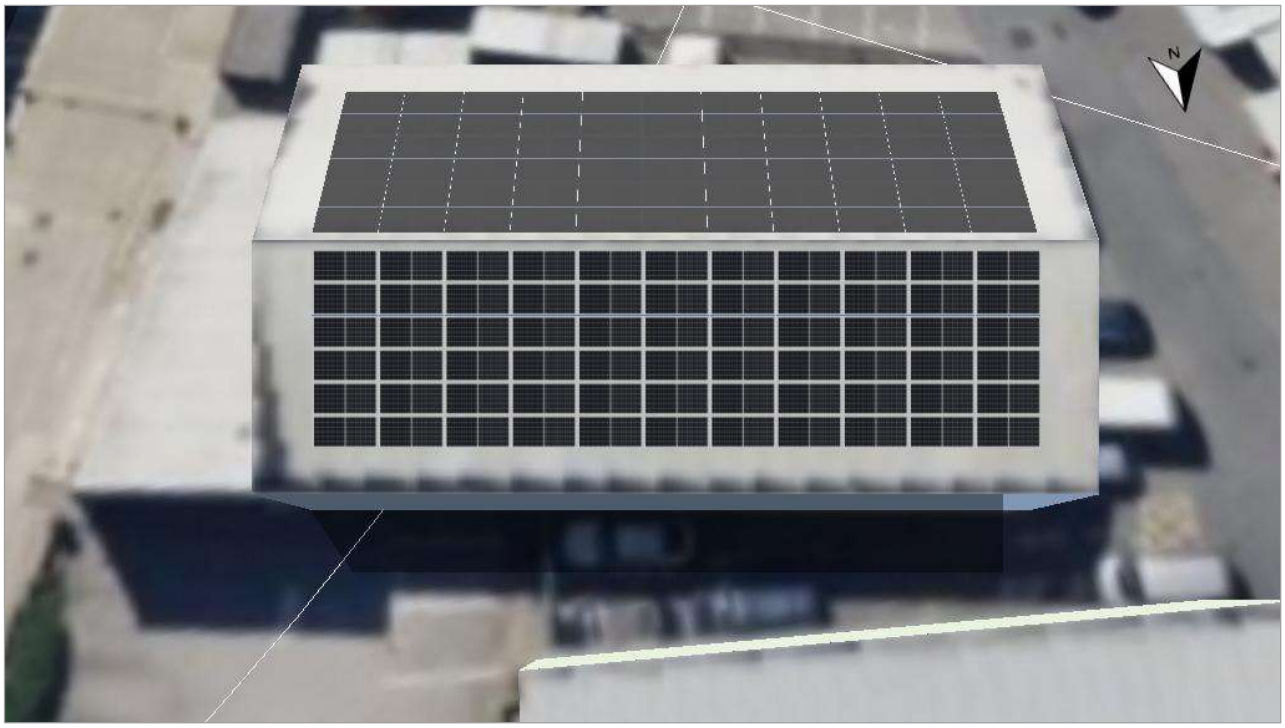


Figure: 2. Module Area - Building 15-Roof Area North

Horizon Line, 3D Design

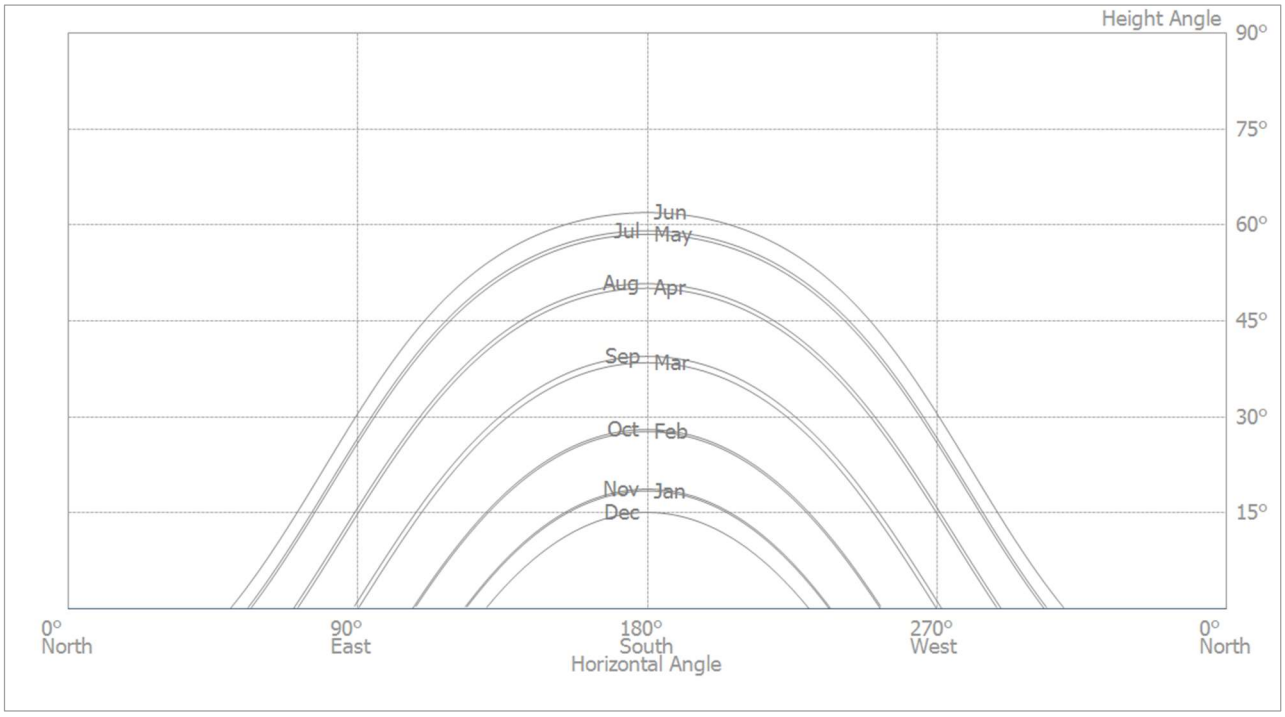


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1	
Module Areas	Building 15-Roof Area South + Building 15-Roof Area North
Inverter 1	
Model	Solis-50K (v2)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	121.4 %
Configuration	MPP 1: 2 x 17
	MPP 2: 2 x 16
	MPP 3: 2 x 17
	MPP 4: 2 x 16

AC Mains

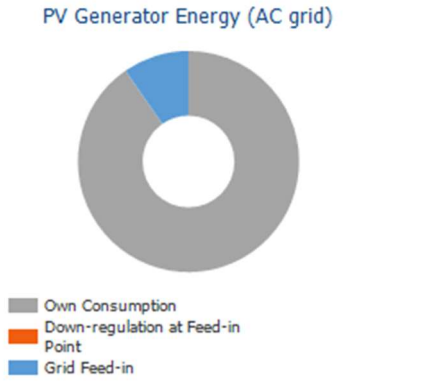
AC Mains	
Number of Phases	3
Mains voltage between phase and neutral	230 V
Displacement Power Factor (cos phi)	+/- 1

Simulation Results

Results Total System

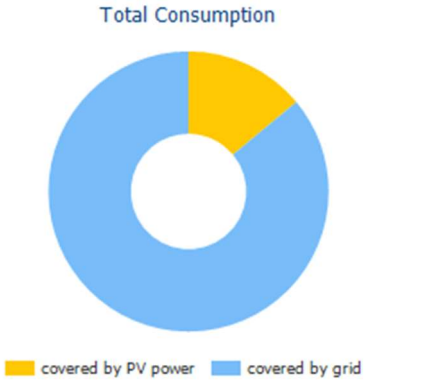
PV System

PV Generator Output	60.72	kWp
Spec. Annual Yield	850.93	kWh/kWp
Performance Ratio (PR)	86.21	%
Yield Reduction due to Shading	0.1	%/Year
PV Generator Energy (AC grid)	51,681	kWh/Year
Own Consumption	46,687	kWh/Year
Down-regulation at Feed-in Point	0	kWh/Year
Grid Feed-in	4,994	kWh/Year
Own Power Consumption	90.3	%
CO_2 Emissions avoided	10,024	kg / year



Appliances

Appliances	334,220	kWh/Year
Standby Consumption (Inverter)	13	kWh/Year
Total Consumption	334,233	kWh/Year
covered by PV power	46,687	kWh/Year
covered by grid	287,545	kWh/Year
Solar Fraction	14.0	%



Level of Self-sufficiency

Total Consumption	334,233	kWh/Year
covered by grid	287,545	kWh/Year
Level of Self-sufficiency	14.0	%

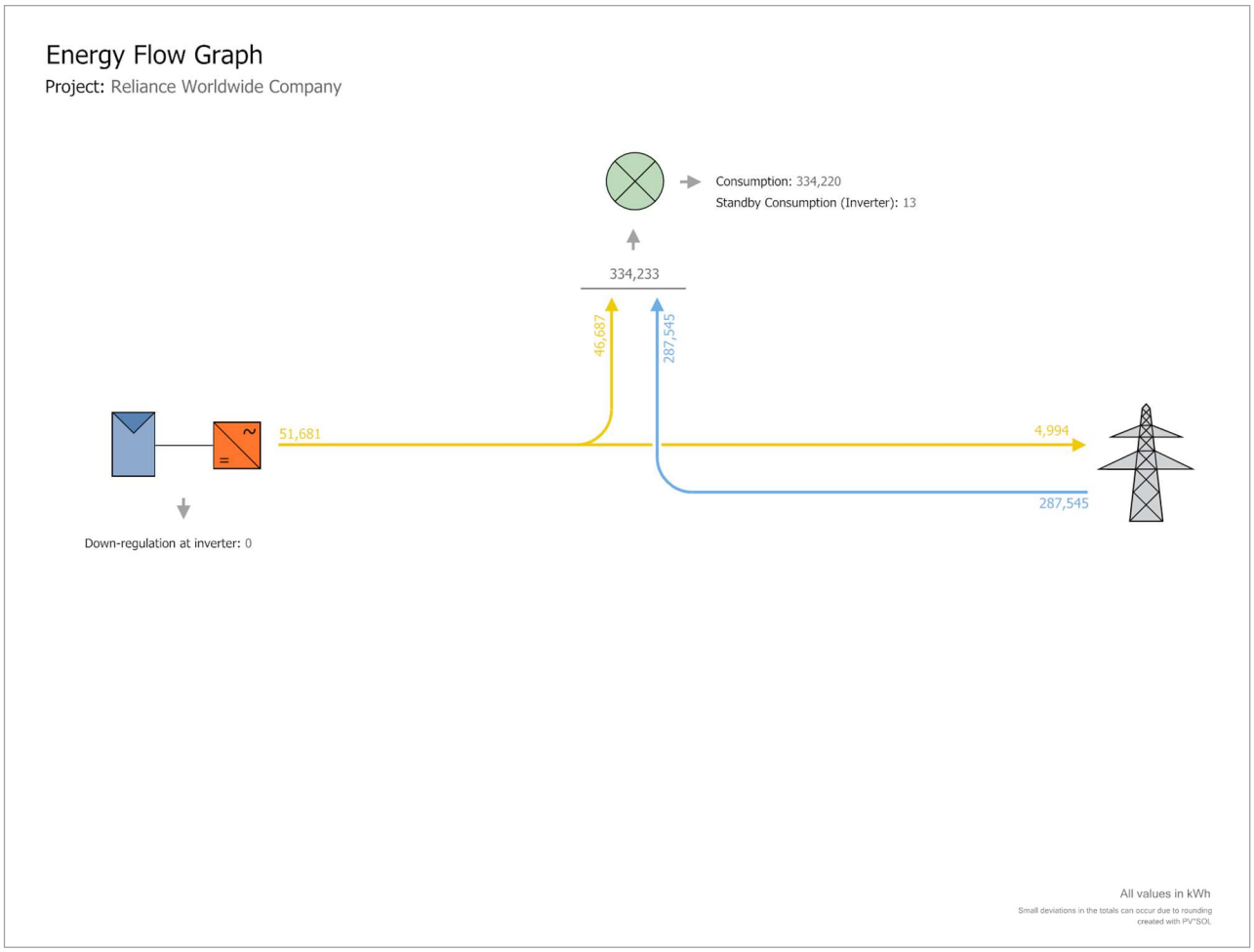


Figure: Energy flow

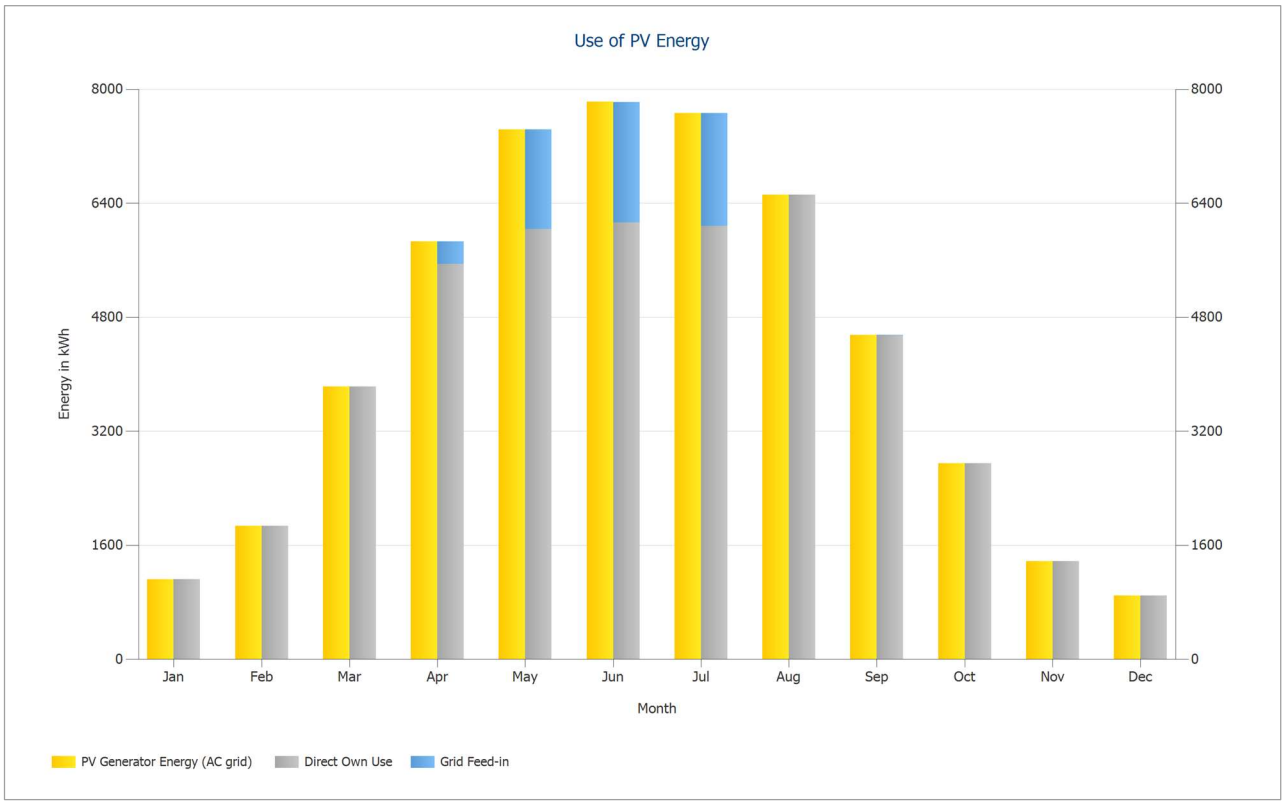


Figure: Use of PV Energy

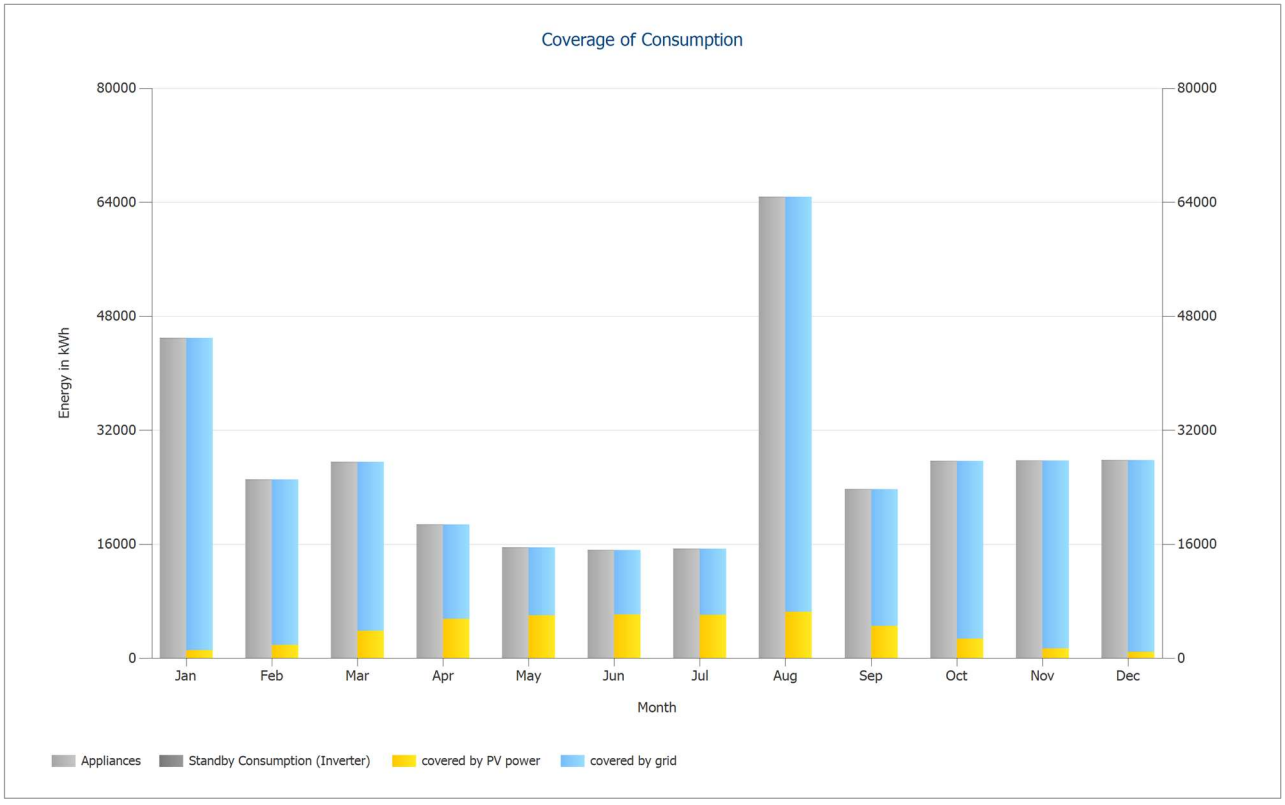


Figure: Coverage of Consumption

Plans and parts list

Circuit Diagram

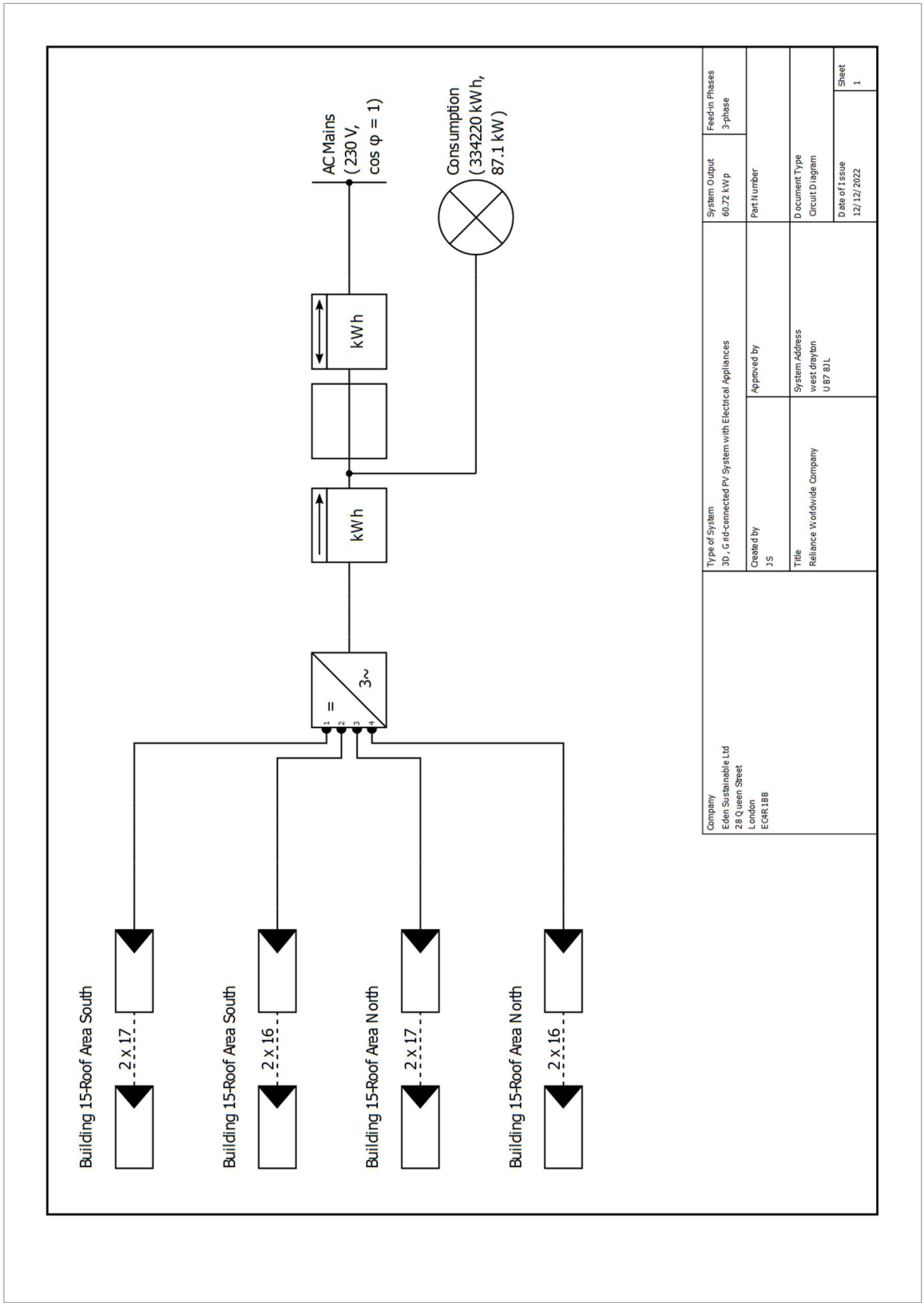


Figure: Circuit Diagram

Overview plan

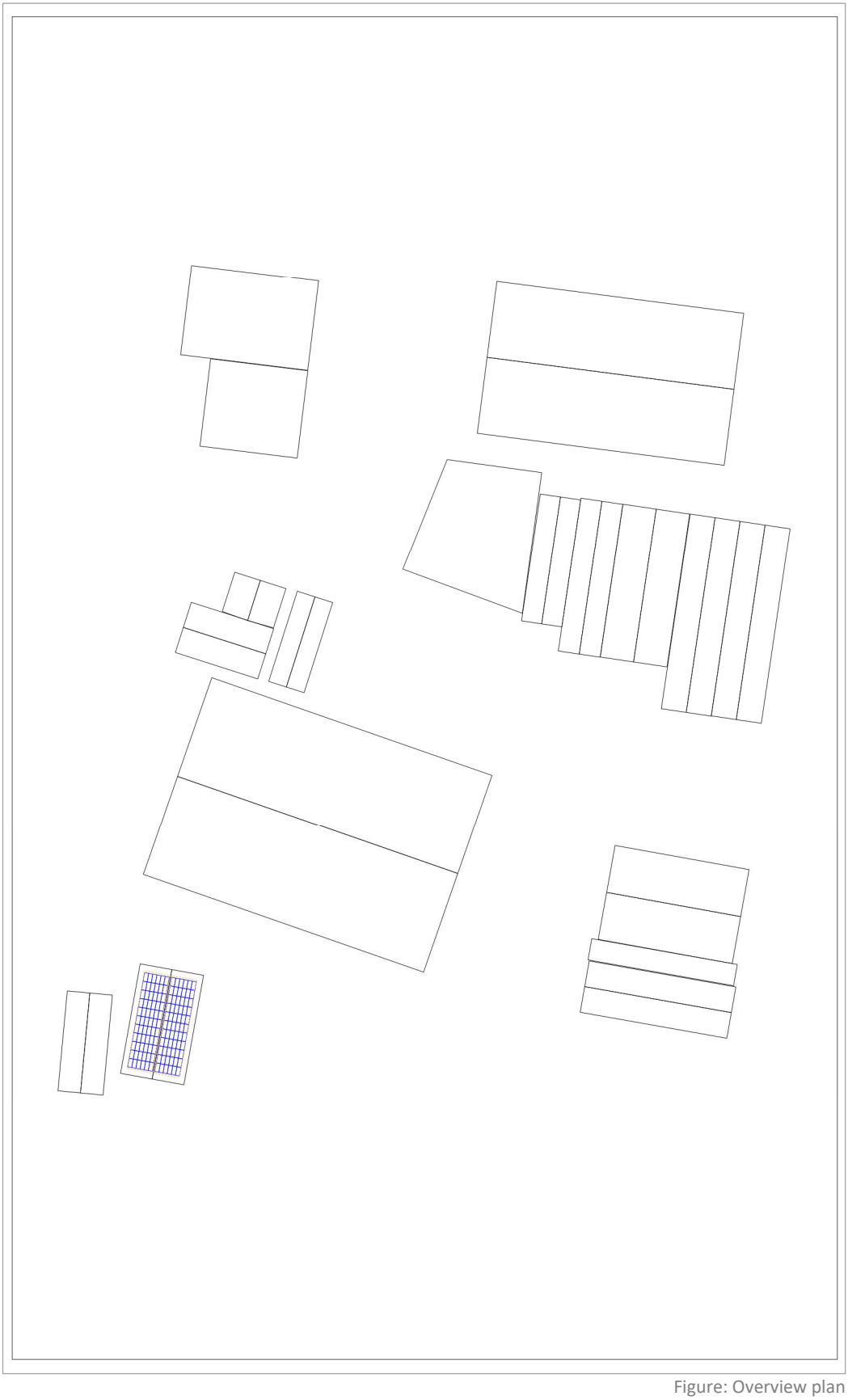


Figure: Overview plan

Dimensioning Plan

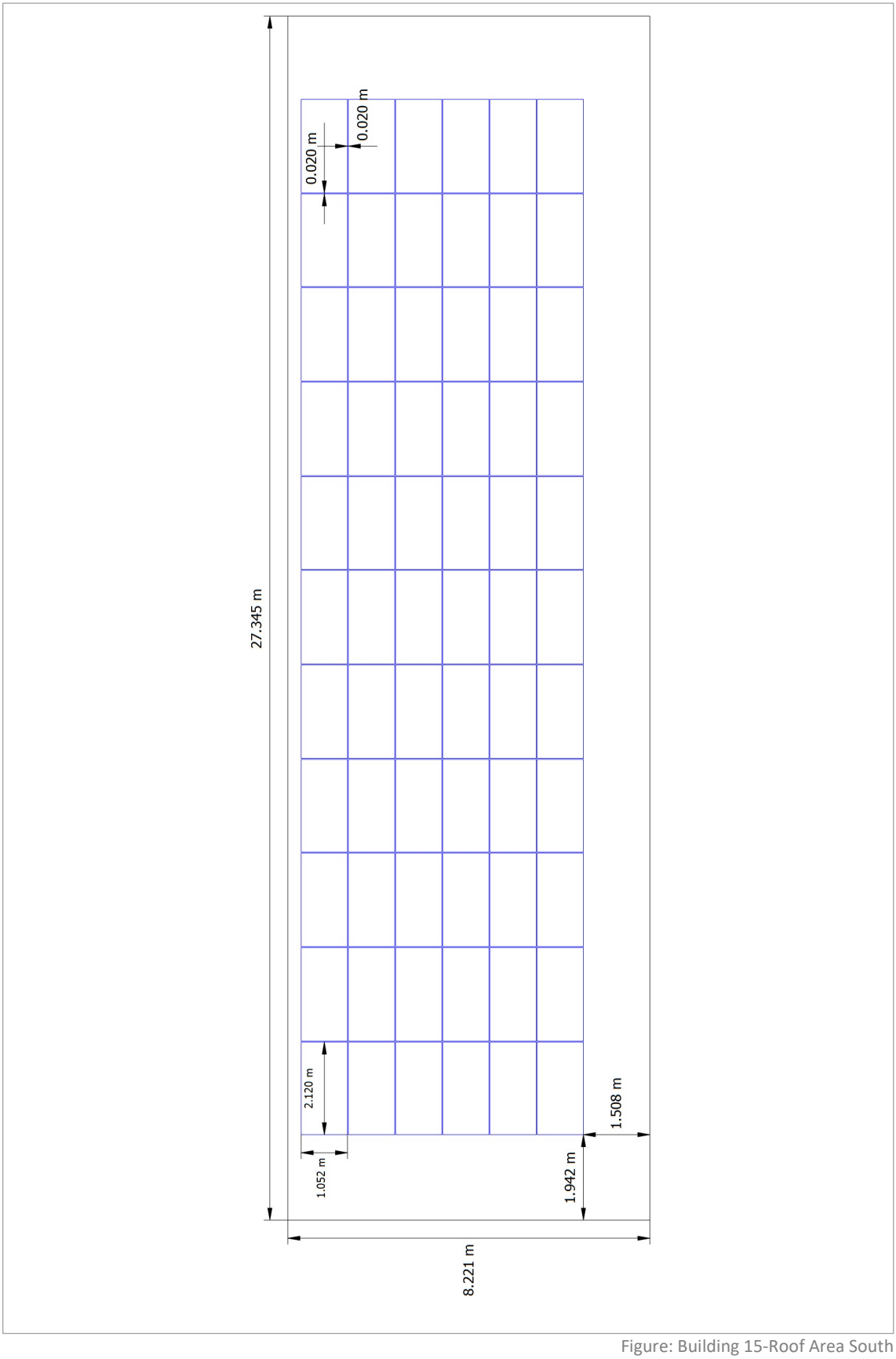


Figure: Building 15-Roof Area South

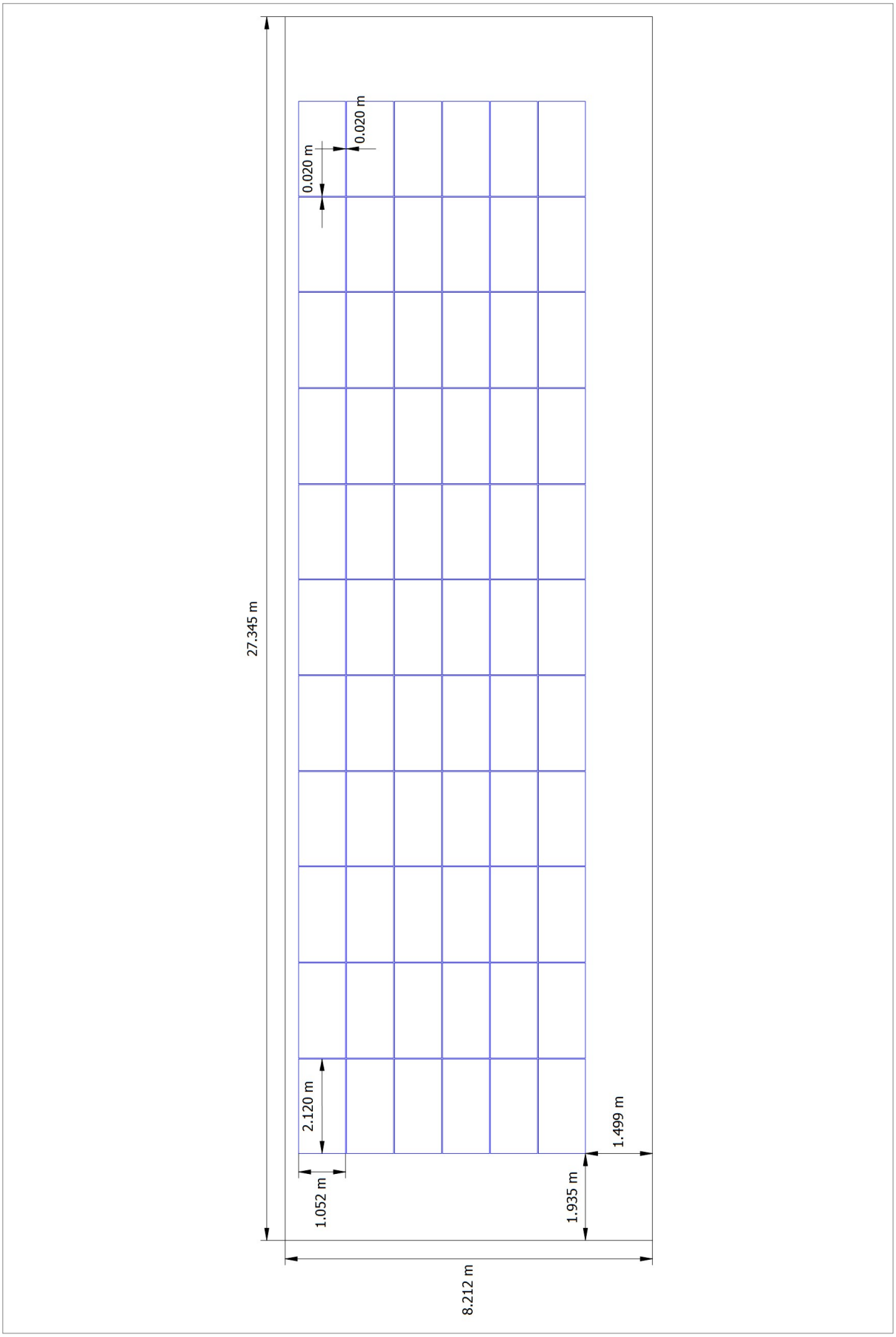


Figure: Building 15-Roof Area North

String Plan

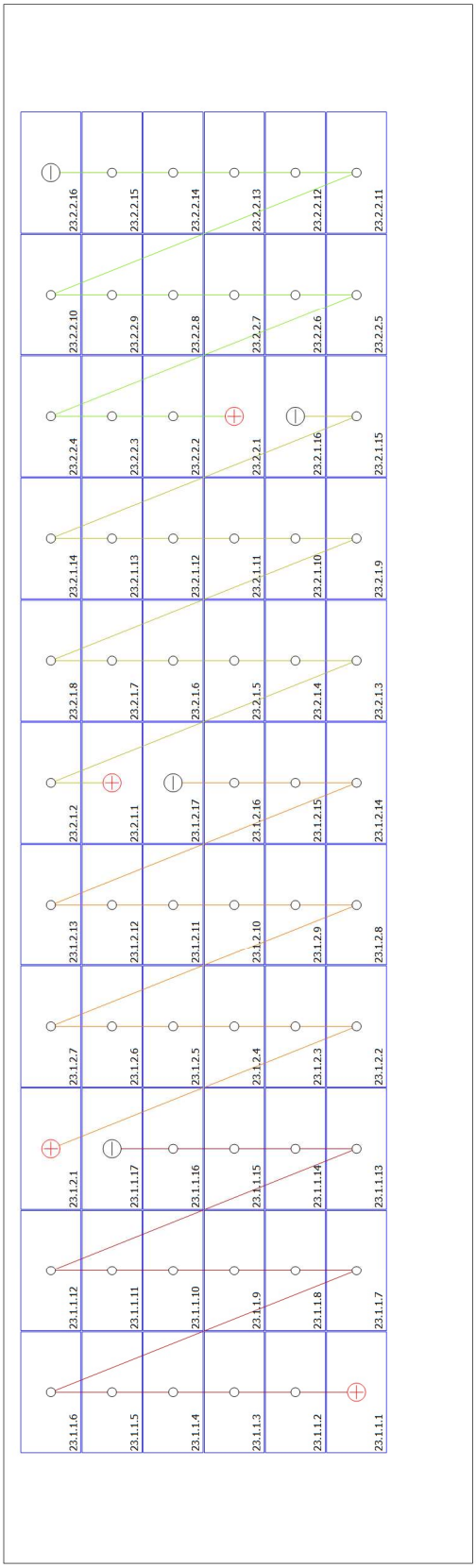


Figure: Building 15-Roof Area South

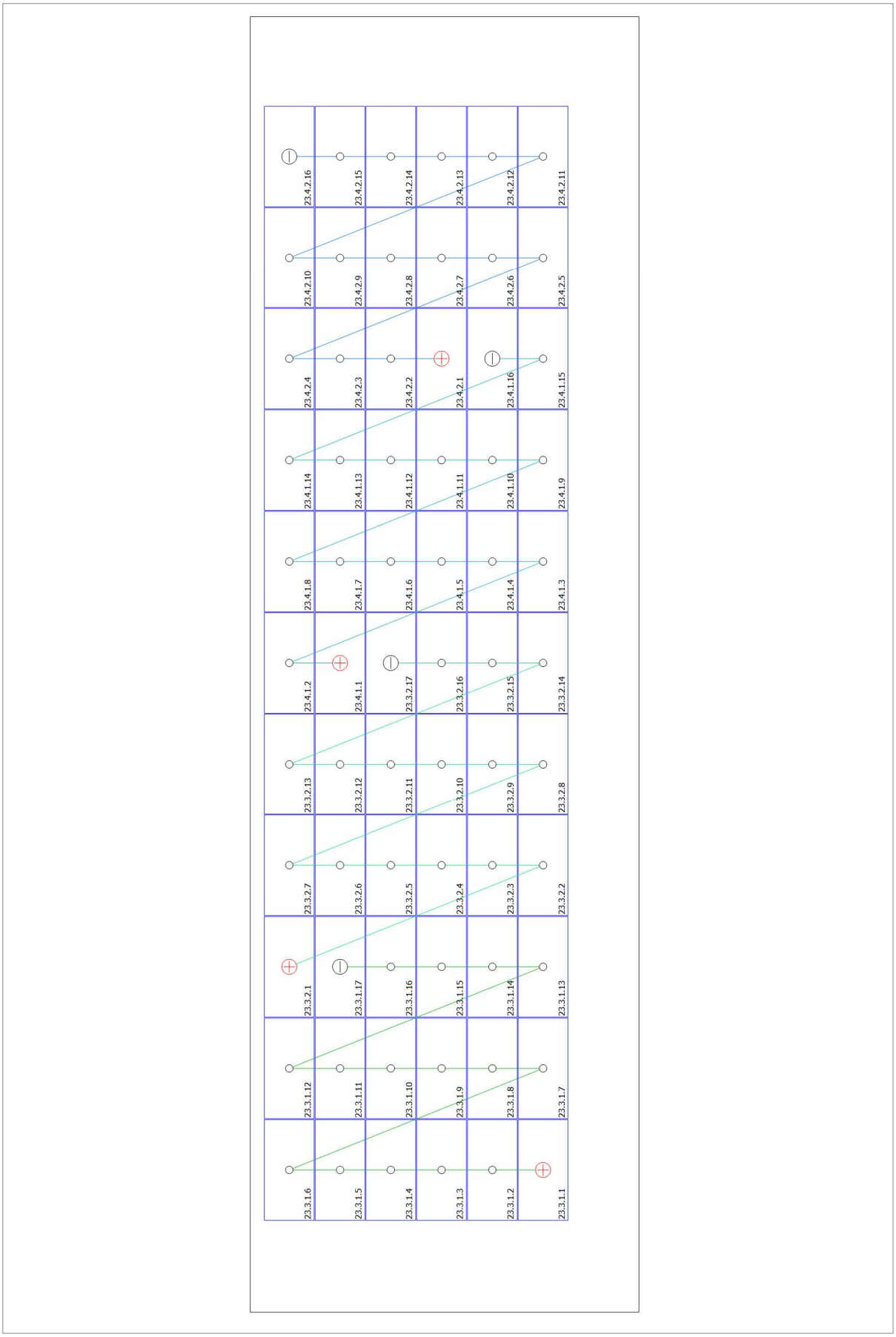


Figure: Building 15-Roof Area North

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		JA Solar Holdings Co., Ltd.	JAM72S20-460/MR	132	Piece
2	Inverter		Ginlong (Solis)	Solis-50K	1	Piece
3	Components			Feed-in Meter	1	Piece
4	Components			House connection	1	Piece
5	Components			Bidirectional Meter	1	Piece

Screenshots, 3D Design

Environment

Figure: Screenshot02