

Eden Sustainable Ltd

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London
EC4R 1BB

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Project Name: Reliance Worldwide Company

01/12/2022

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	57.04 kWp
PV Generator Surface	276.5 m²
Number of PV Modules	124
Number of Inverters	3

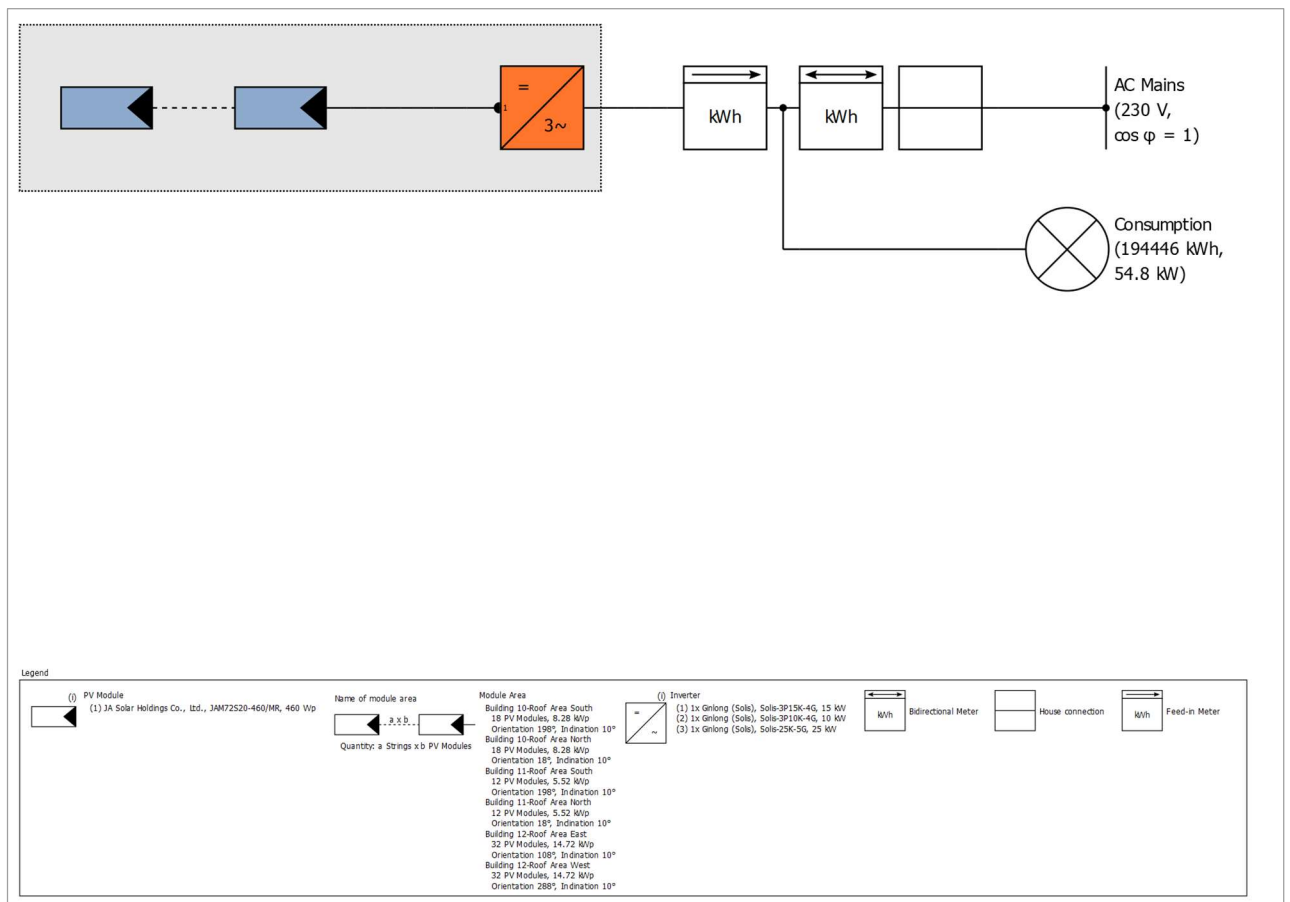


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	57.04 kWp
Spec. Annual Yield	855.42 kWh/kWp
Performance Ratio (PR)	85.63 %
Yield Reduction due to Shading	0.7 %/Year
PV Generator Energy (AC grid)	48,834 kWh/Year
Own Consumption	45,321 kWh/Year
Down-regulation at Feed-in Point	0 kWh/Year
Grid Feed-in	3,513 kWh/Year
Own Power Consumption	92.8 %
CO ₂ Emissions avoided	9,466 kg / year
Level of Self-sufficiency	23.3 %

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
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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	194446 kWh
RWC MPAN 2000027285138 YE 31-10-2022 CSV	194446 kWh
Load Peak	54.8 kW

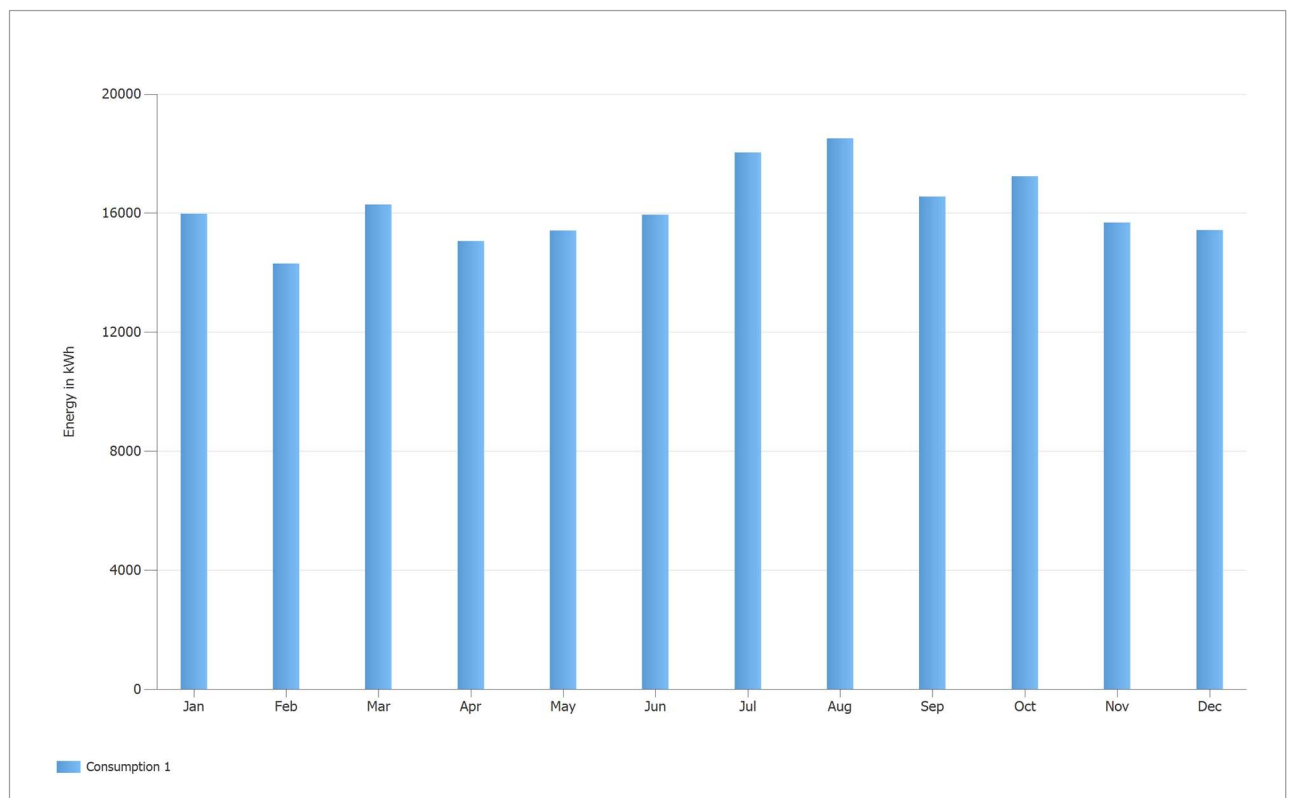


Figure: Consumption

Module Areas

1. Module Area - Building 10-Roof Area South

PV Generator, 1. Module Area - Building 10-Roof Area South

Name	Building 10-Roof Area South
PV Modules	18 x JAM72S20-460/MR (v5)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	10 °
Orientation	South 198 °
Installation Type	Roof parallel
PV Generator Surface	40.1 m ²

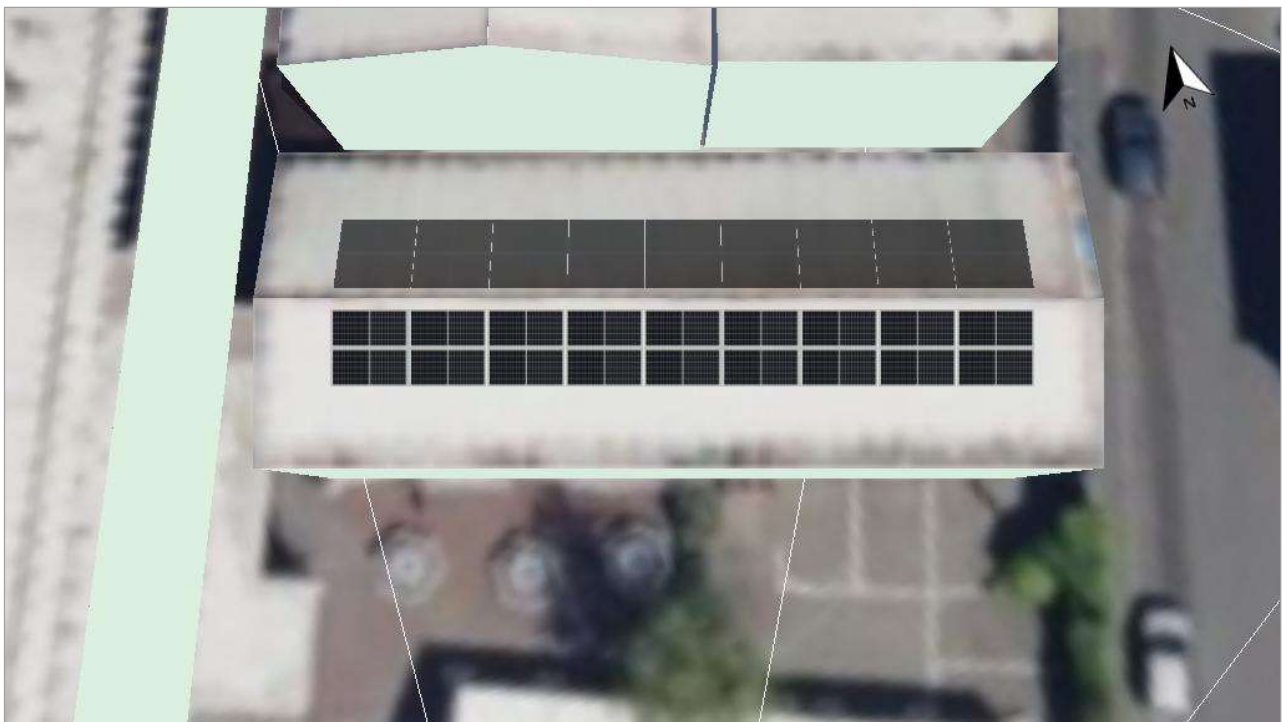


Figure: 1. Module Area - Building 10-Roof Area South

2. Module Area - Building 10-Roof Area North

PV Generator, 2. Module Area - Building 10-Roof Area North

Name	Building 10-Roof Area North
PV Modules	18 x JAM72S20-460/MR (v5)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	10 °
Orientation	North 18 °
Installation Type	Roof parallel
PV Generator Surface	40.1 m ²

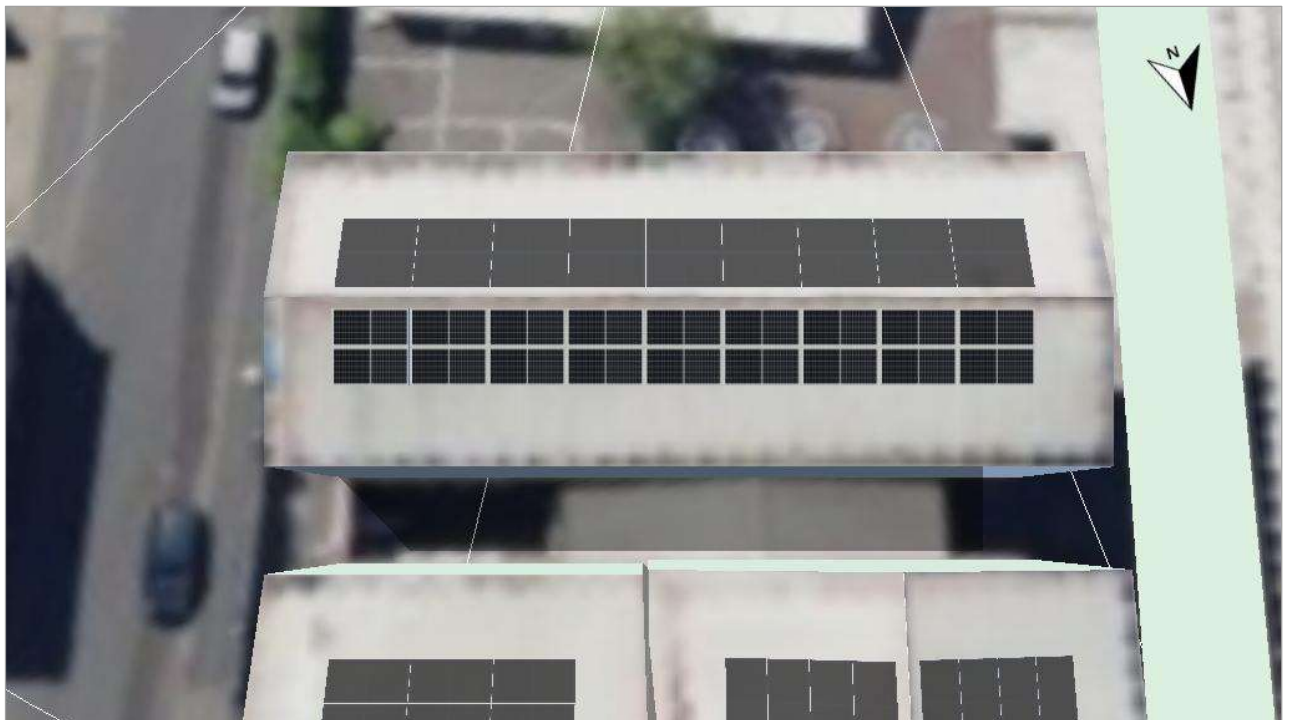


Figure: 2. Module Area - Building 10-Roof Area North

3. Module Area - Building 11-Roof Area South

PV Generator, 3. Module Area - Building 11-Roof Area South

Name	Building 11-Roof Area South
PV Modules	12 x JAM72S20-460/MR (v5)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	10 °
Orientation	South 198 °
Installation Type	Roof parallel
PV Generator Surface	26.8 m²

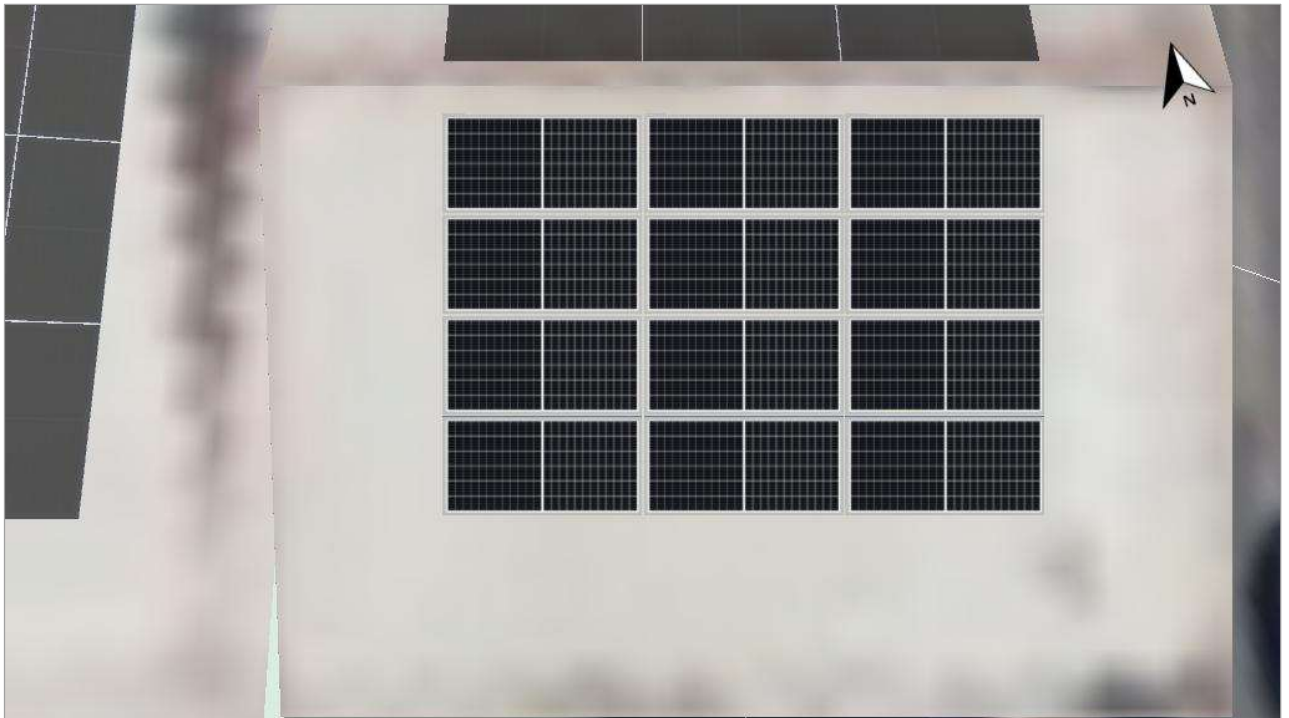


Figure: 3. Module Area - Building 11-Roof Area South

4. Module Area - Building 11-Roof Area North

PV Generator, 4. Module Area - Building 11-Roof Area North

Name	Building 11-Roof Area North
PV Modules	12 x JAM72S20-460/MR (v5)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	10 °
Orientation	North 18 °
Installation Type	Roof parallel
PV Generator Surface	26.8 m²

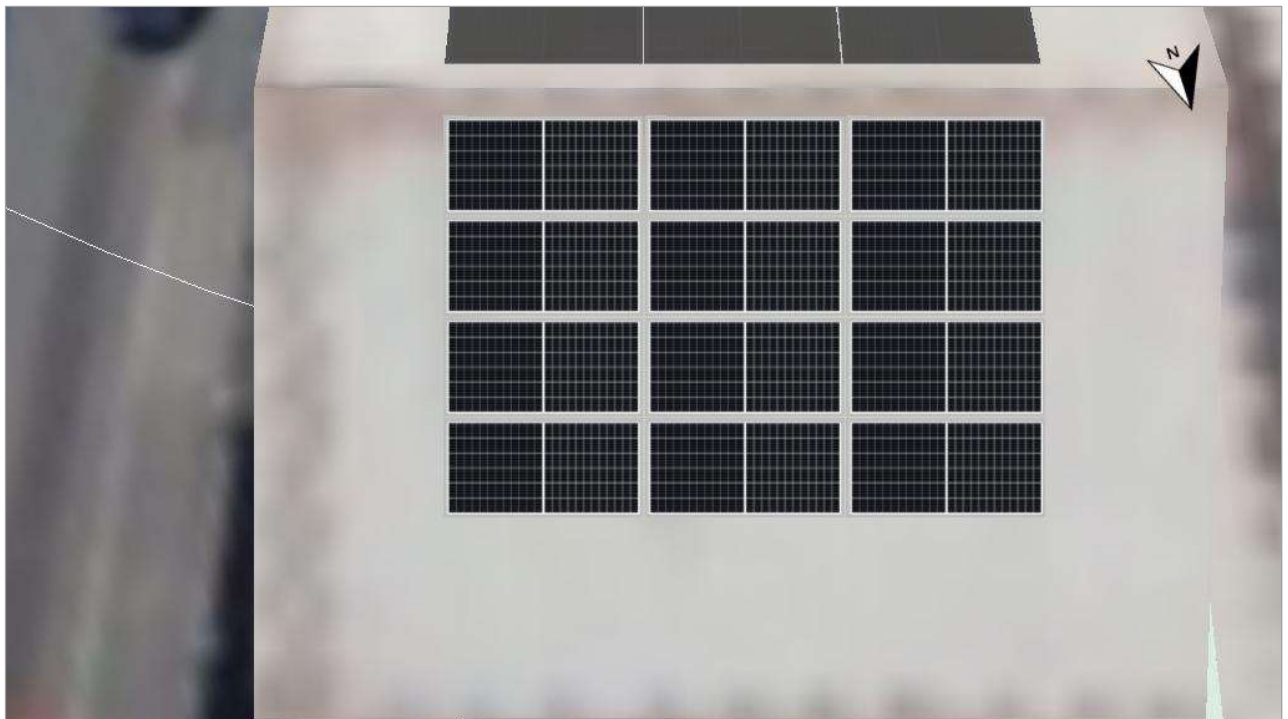


Figure: 4. Module Area - Building 11-Roof Area North

5. Module Area - Building 12-Roof Area East

PV Generator, 5. Module Area - Building 12-Roof Area East

Name	Building 12-Roof Area East
PV Modules	32 x JAM72S20-460/MR (v5)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	10 °
Orientation	East 108 °
Installation Type	Roof parallel
PV Generator Surface	71.4 m²

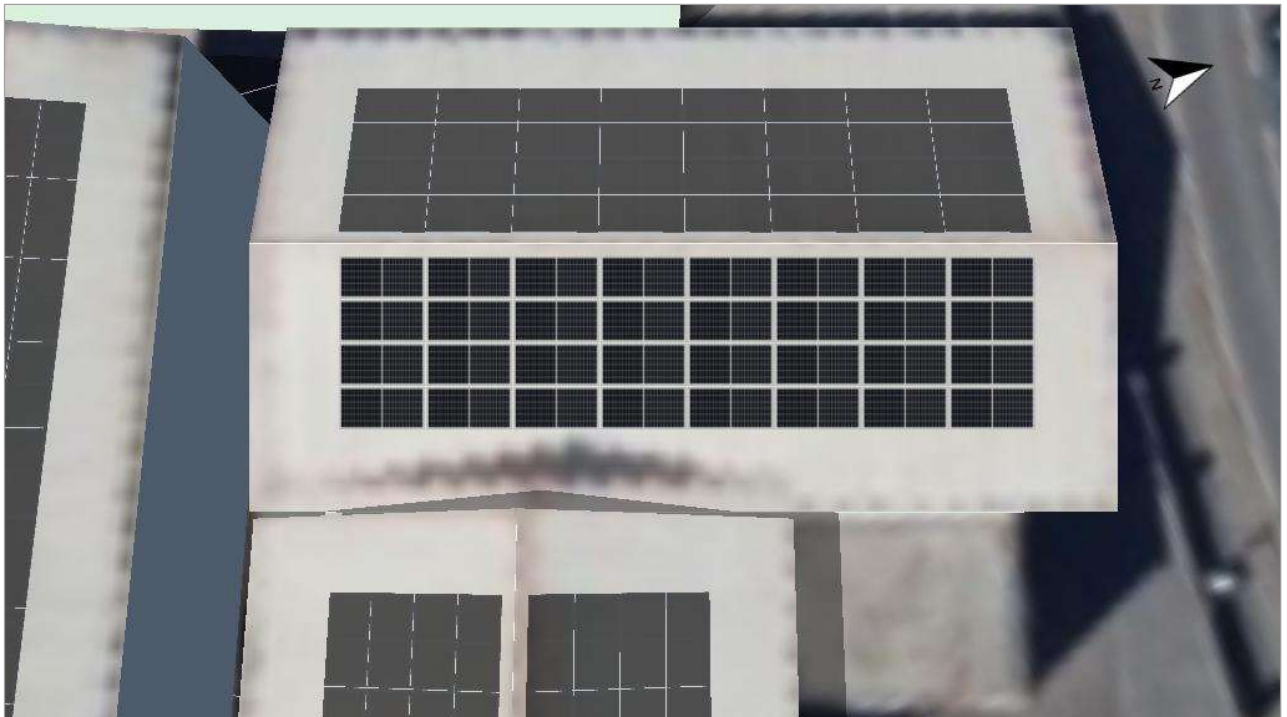


Figure: 5. Module Area - Building 12-Roof Area East

6. Module Area - Building 12-Roof Area West

PV Generator, 6. Module Area - Building 12-Roof Area West

Name	Building 12-Roof Area West
PV Modules	32 x JAM72S20-460/MR (v5)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	10 °
Orientation	West 288 °
Installation Type	Roof parallel
PV Generator Surface	71.4 m²



Figure: 6. Module Area - Building 12-Roof Area West

Horizon Line, 3D Design

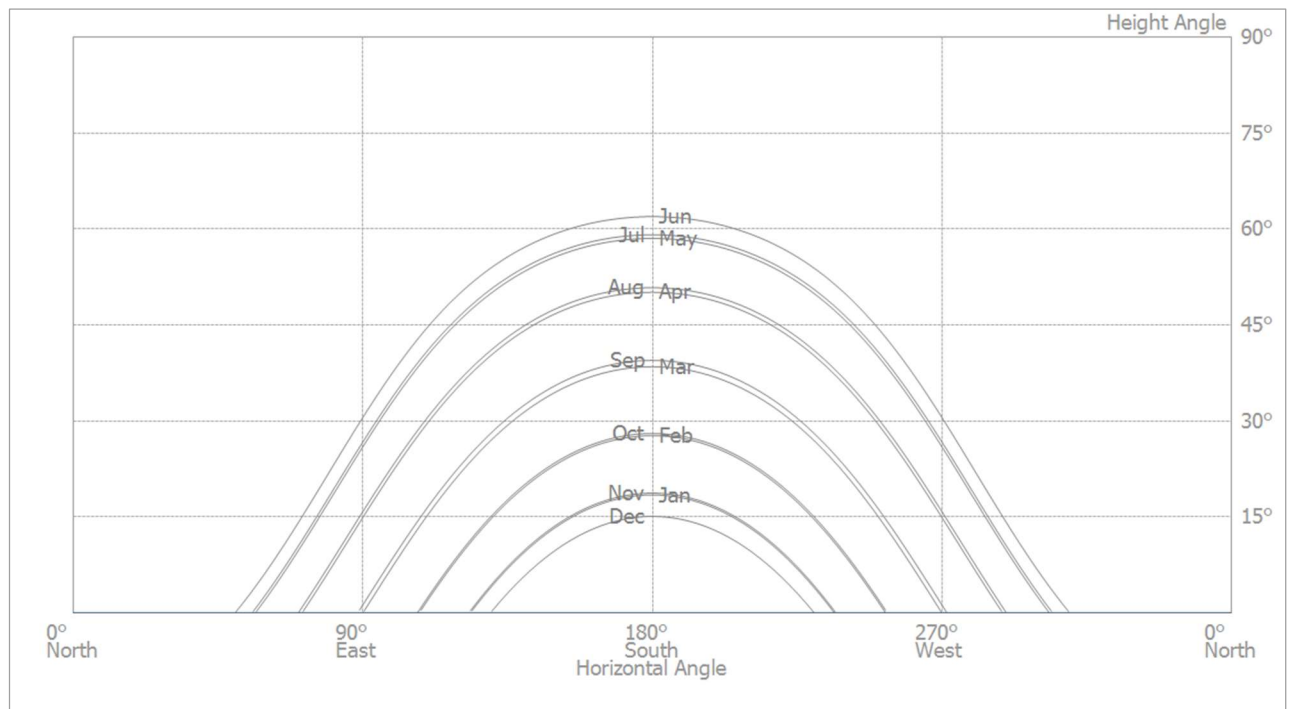


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1

Module Areas	Building 10-Roof Area South + Building 10-Roof Area North
Inverter 1	
Model	Solis-3P15K-4G (v2)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	110.4 %
Configuration	MPP 1: 1 x 18 MPP 2: 1 x 18

Configuration 2

Module Areas	Building 11-Roof Area South + Building 11-Roof Area North
Inverter 1	
Model	Solis-3P10K-4G (v2)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	110.4 %
Configuration	MPP 1: 1 x 12 MPP 2: 1 x 12

Configuration 3

Module Areas	Building 12-Roof Area East + Building 12-Roof Area West
Inverter 1	
Model	Solis-25K-5G (v2)
Manufacturer	Ginlong (Solis)
Quantity	1
Sizing Factor	117.8 %
Configuration	MPP 1: 1 x 18
	MPP 2: 1 x 14
	MPP 3: 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

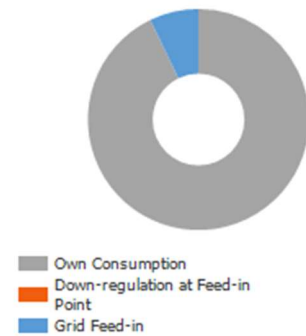
Simulation Results

Results Total System

PV System

PV Generator Output	57.04 kWp
Spec. Annual Yield	855.42 kWh/kWp
Performance Ratio (PR)	85.63 %
Yield Reduction due to Shading	0.7 %/Year
PV Generator Energy (AC grid)	48,834 kWh/Year
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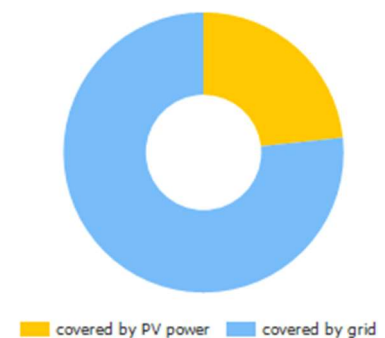
PV Generator Energy (AC grid)



Appliances

Appliances	194,446 kWh/Year
Standby Consumption (Inverter)	41 kWh/Year
Total Consumption	194,487 kWh/Year
covered by PV power	45,321 kWh/Year
covered by grid	149,166 kWh/Year
Solar Fraction	23.3 %

Total Consumption

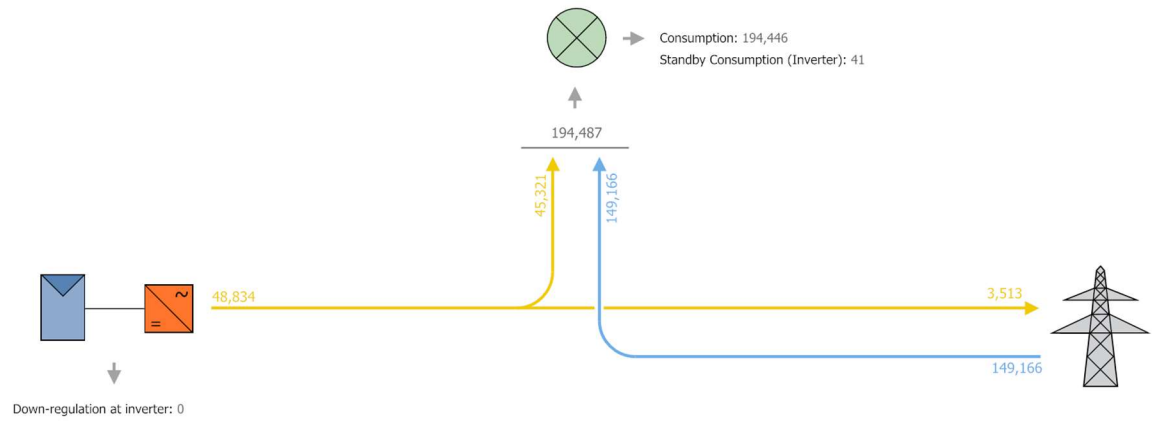


Level of Self-sufficiency

Total Consumption	194,487 kWh/Year
covered by grid	149,166 kWh/Year
Level of Self-sufficiency	23.3 %

Energy Flow Graph

Project: Reliance Worldwide Company



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

Figure: Energy flow

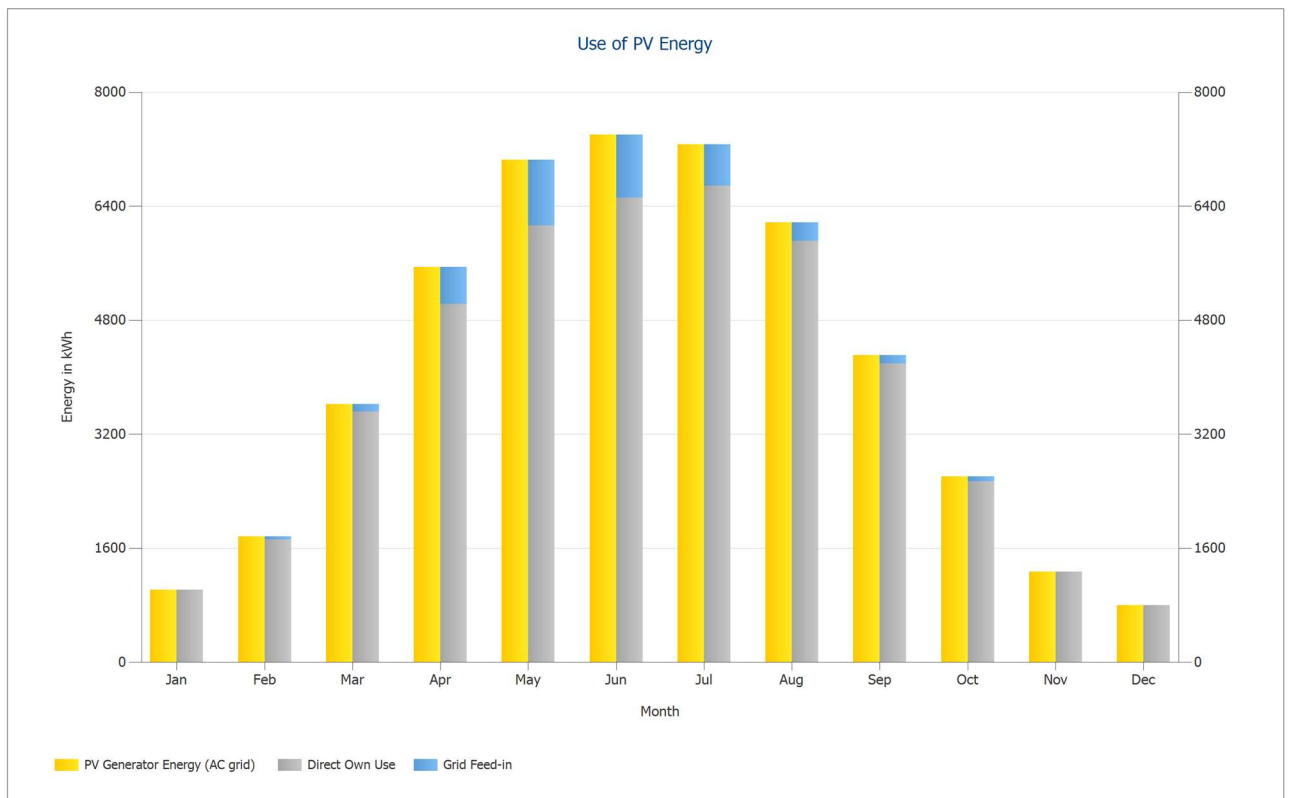


Figure: Use of PV Energy

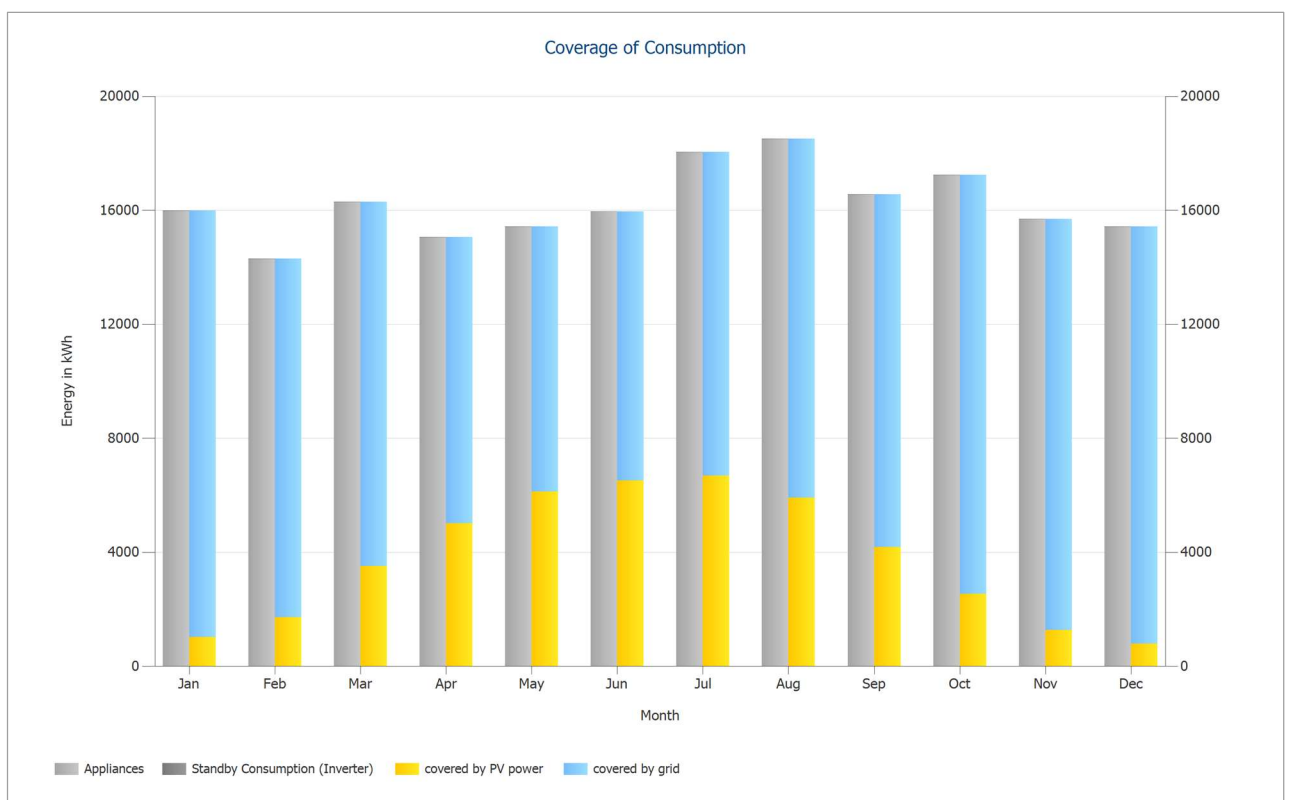
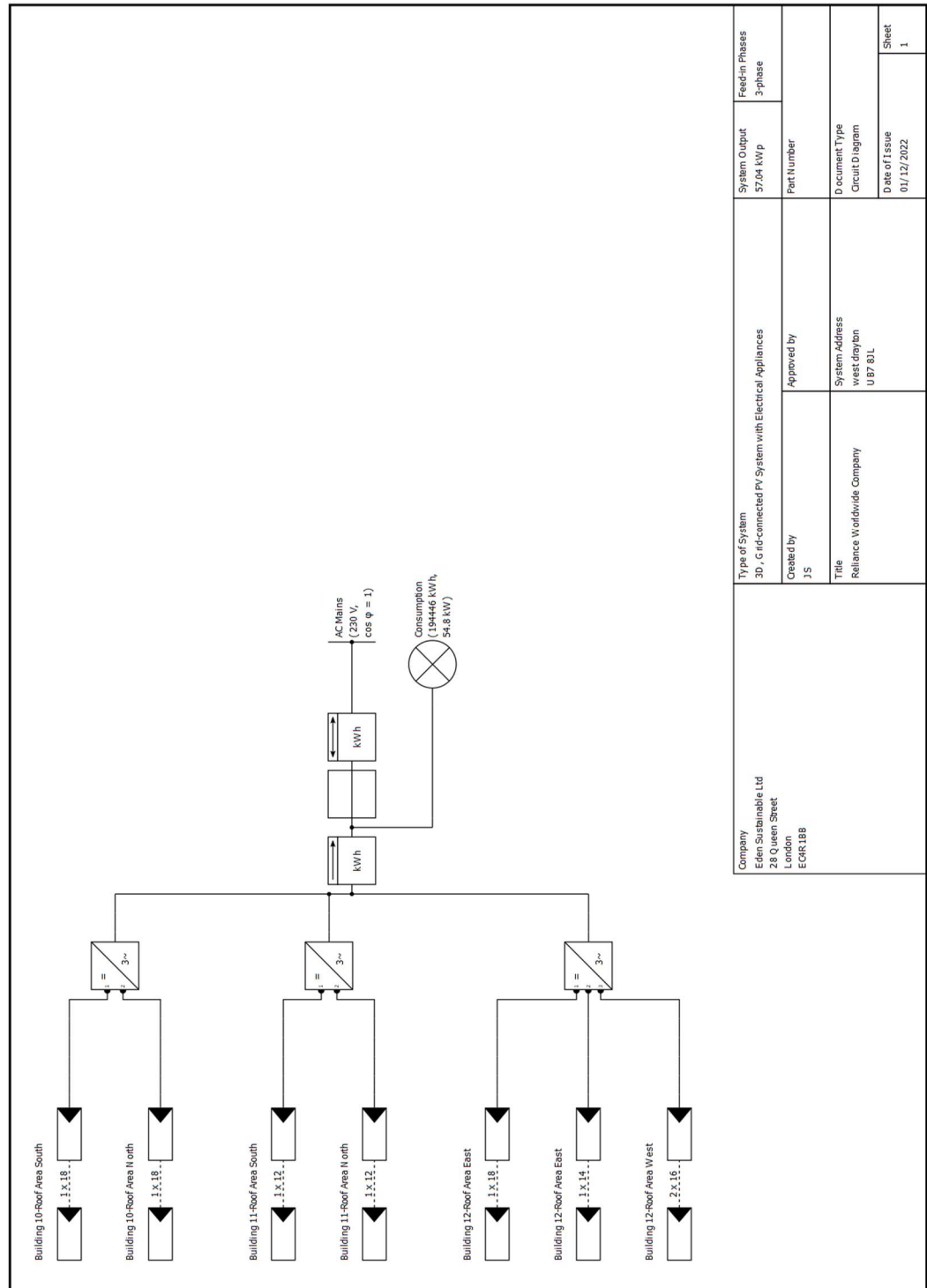


Figure: Coverage of Consumption

Plans and parts list

Circuit Diagram



Company Eden Sustainable Ltd 28 Queen Street London EC4R 1BB	Type of System 3D, Grid-connected PV System with Electrical Appliances		System Output 57.04 kWp	Feed-in Phases 3-phase
	Created by JS	Approved by	Part Number	
	Title Reliance Worldwide Company	System Address west droyen U87 8JL	Document Type Circuit Diagram	
			Date of Issue 01/12/2022	Sheet 1

Figure: Circuit Diagram

Overview plan

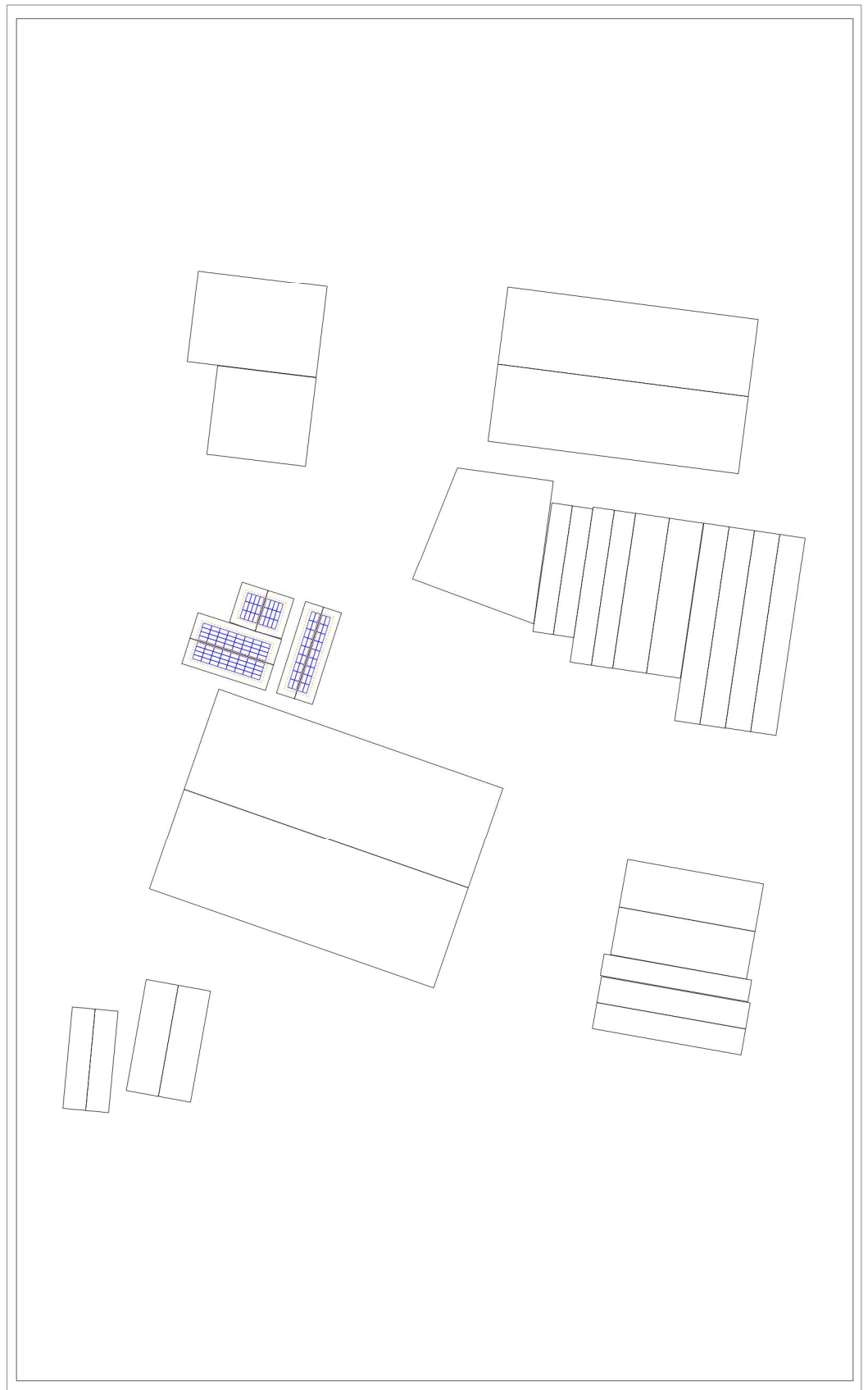


Figure: Overview plan

Dimensioning Plan

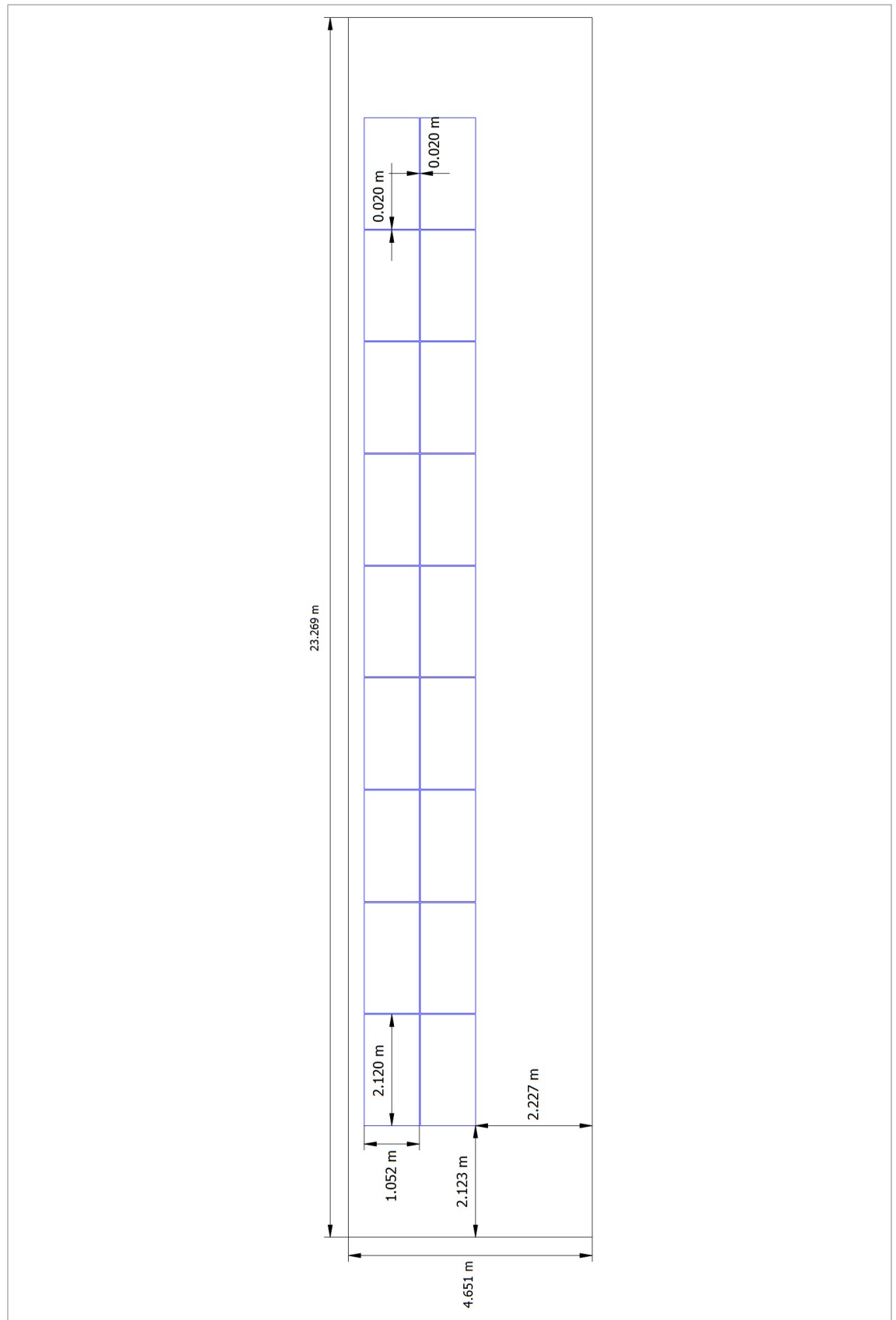


Figure: Building 10-Roof Area South

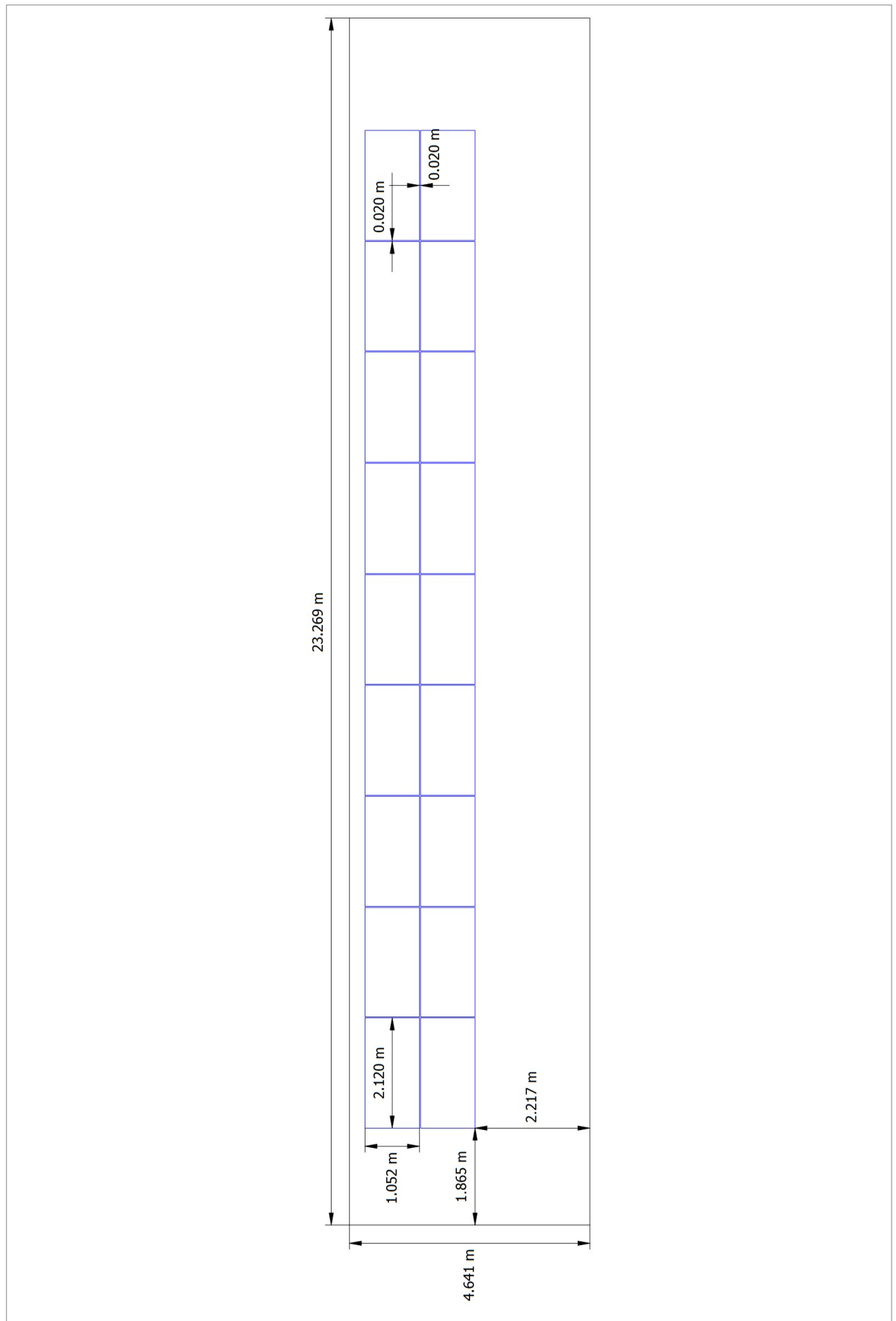


Figure: Building 10-Roof Area North

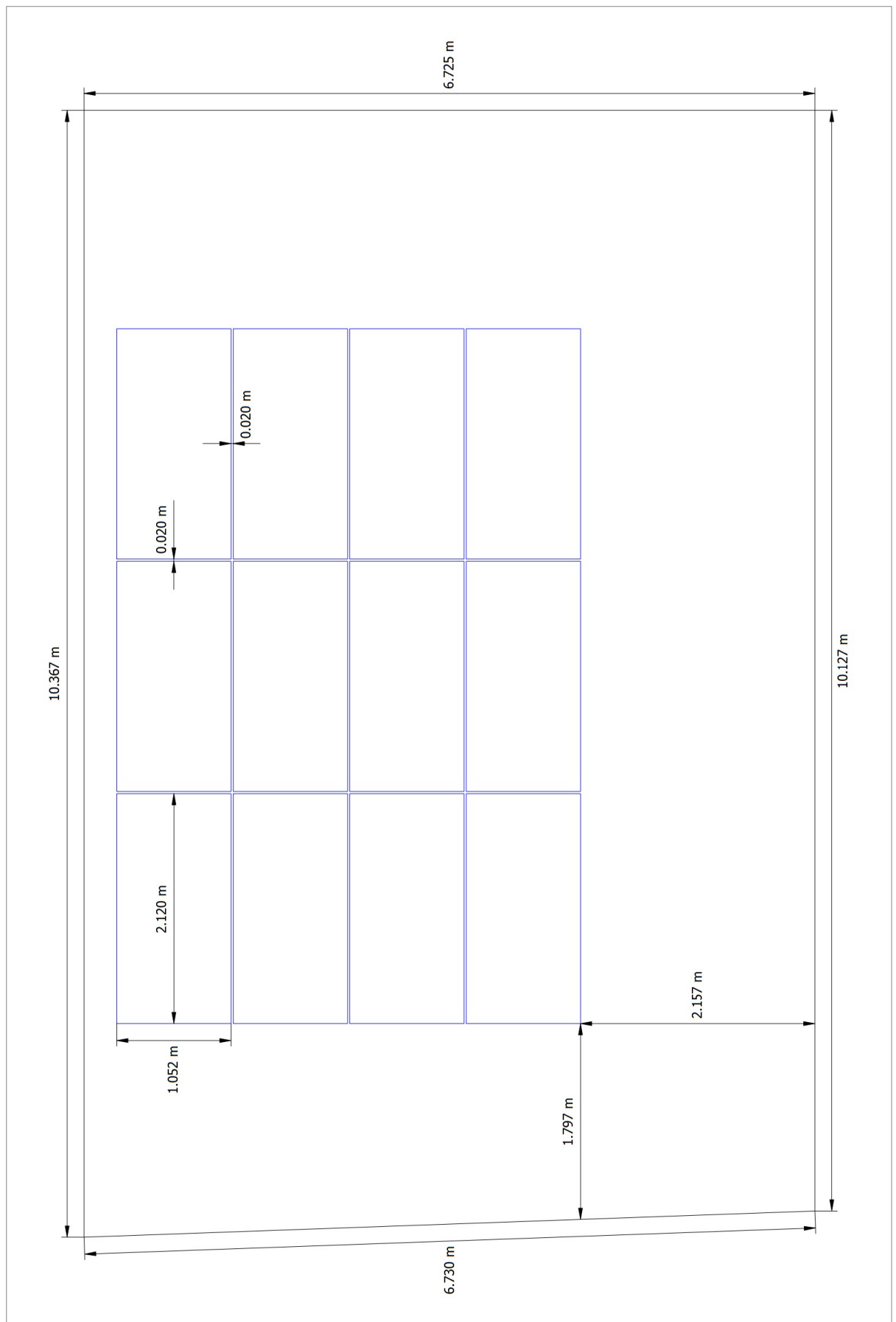
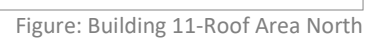


Figure: Building 11-Roof Area South



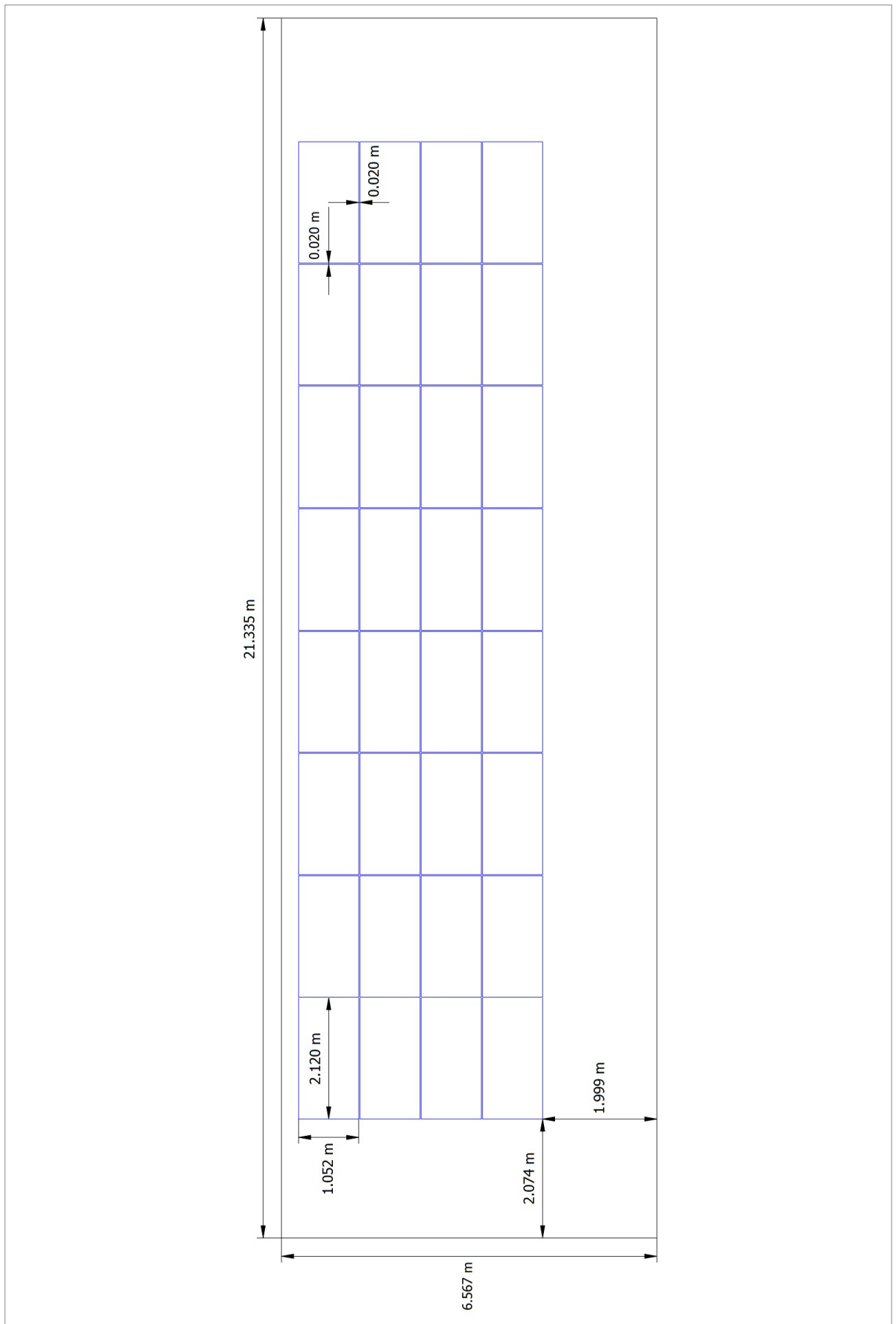


Figure: Building 12-Roof Area West

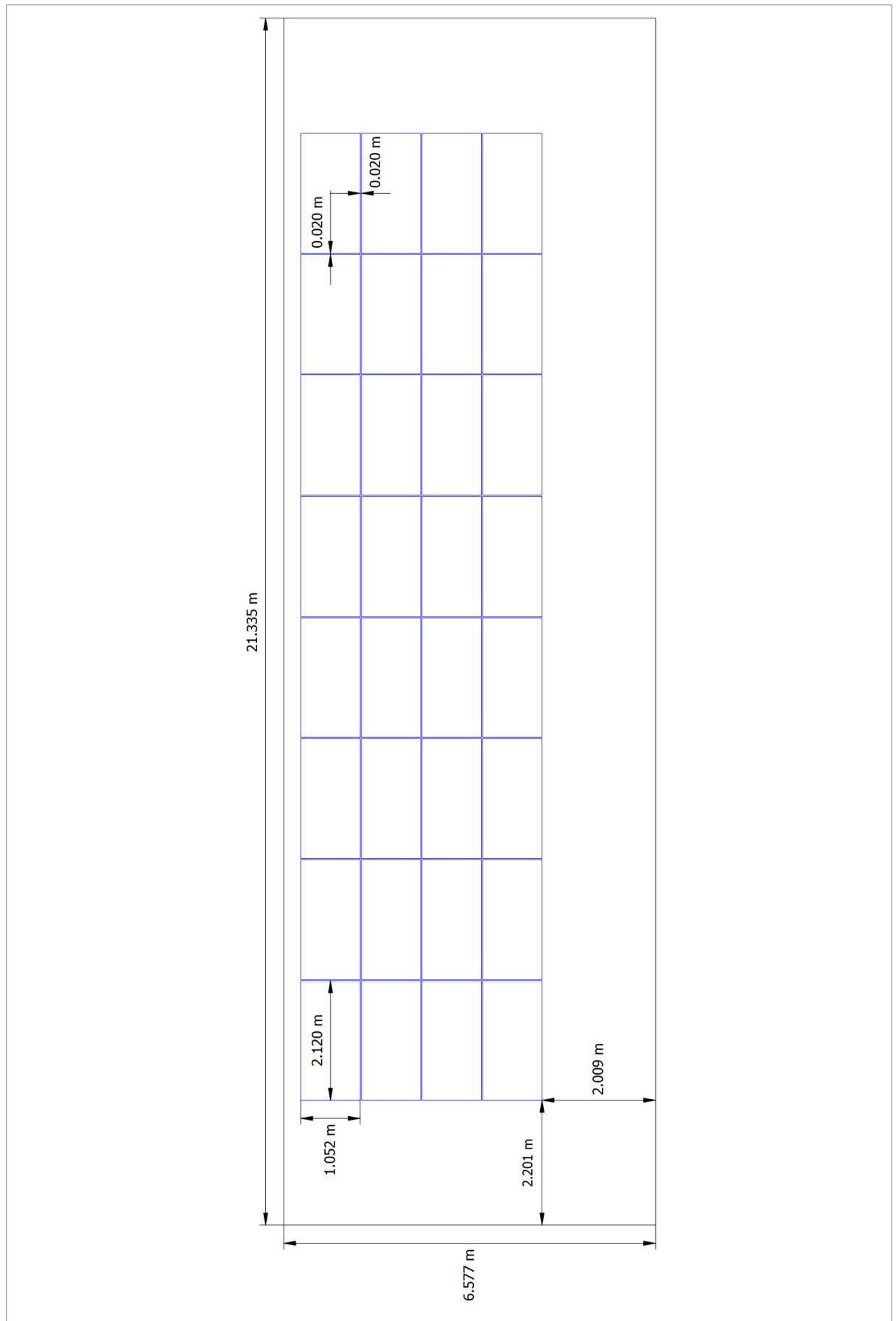


Figure: Building 12-Roof Area East

String Plan

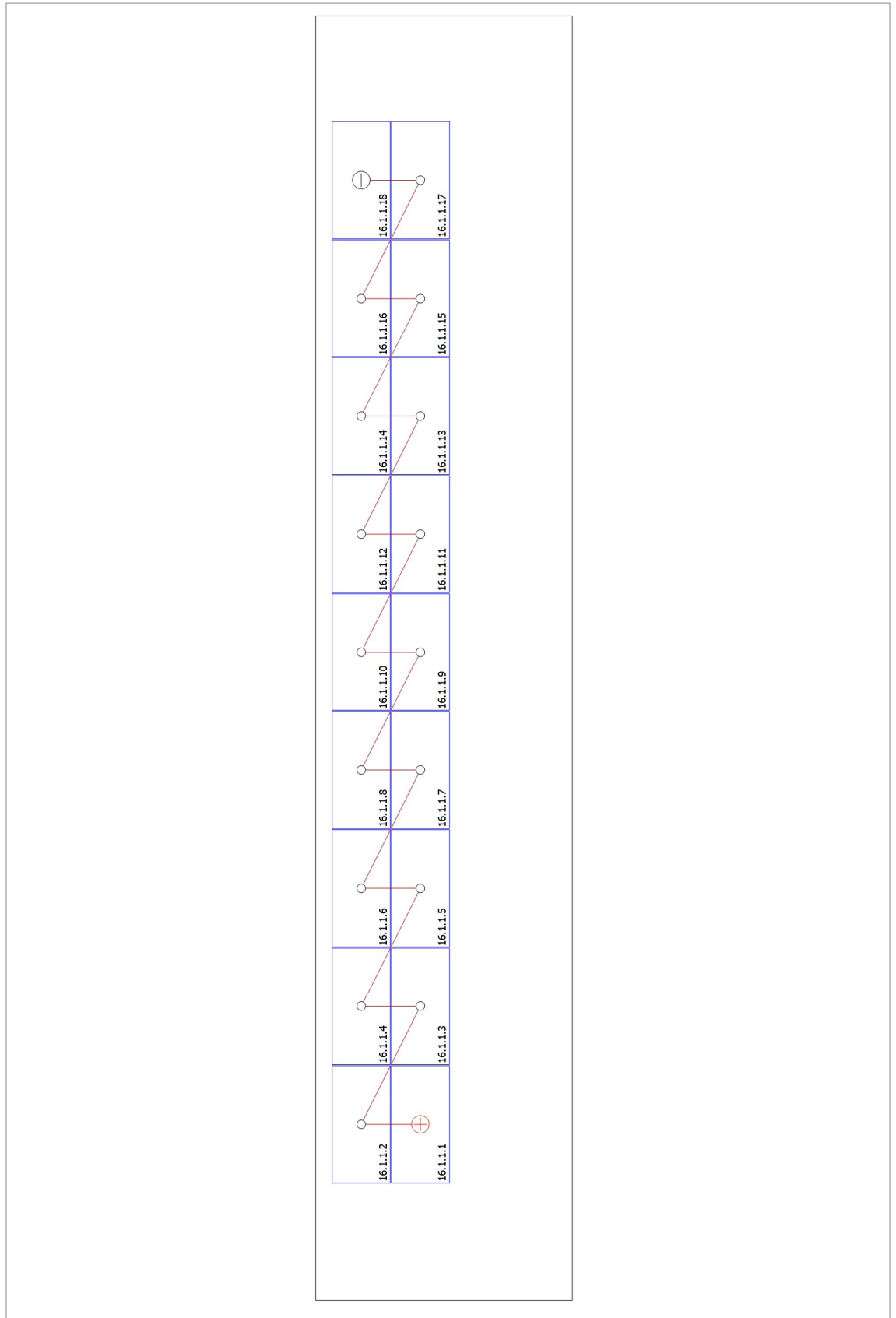


Figure: Building 10-Roof Area South

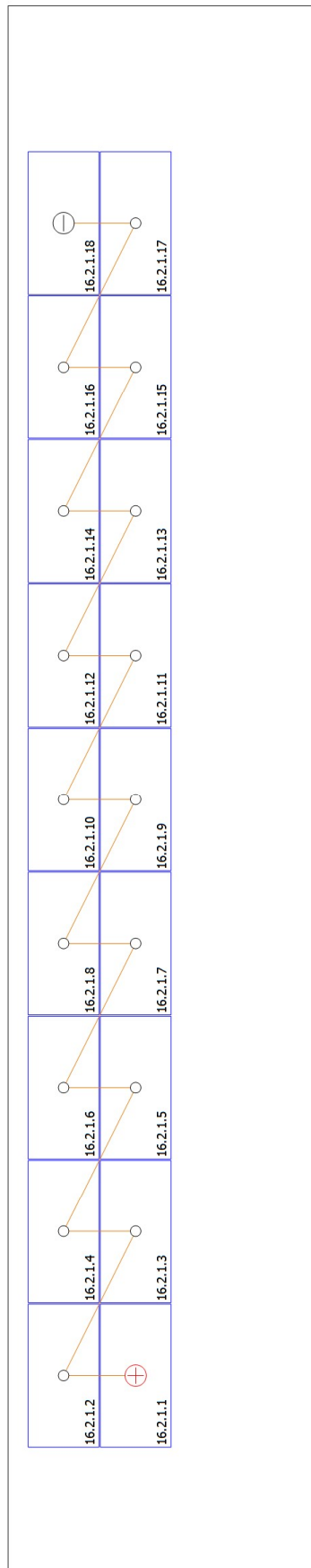


Figure: Building 10-Roof Area North

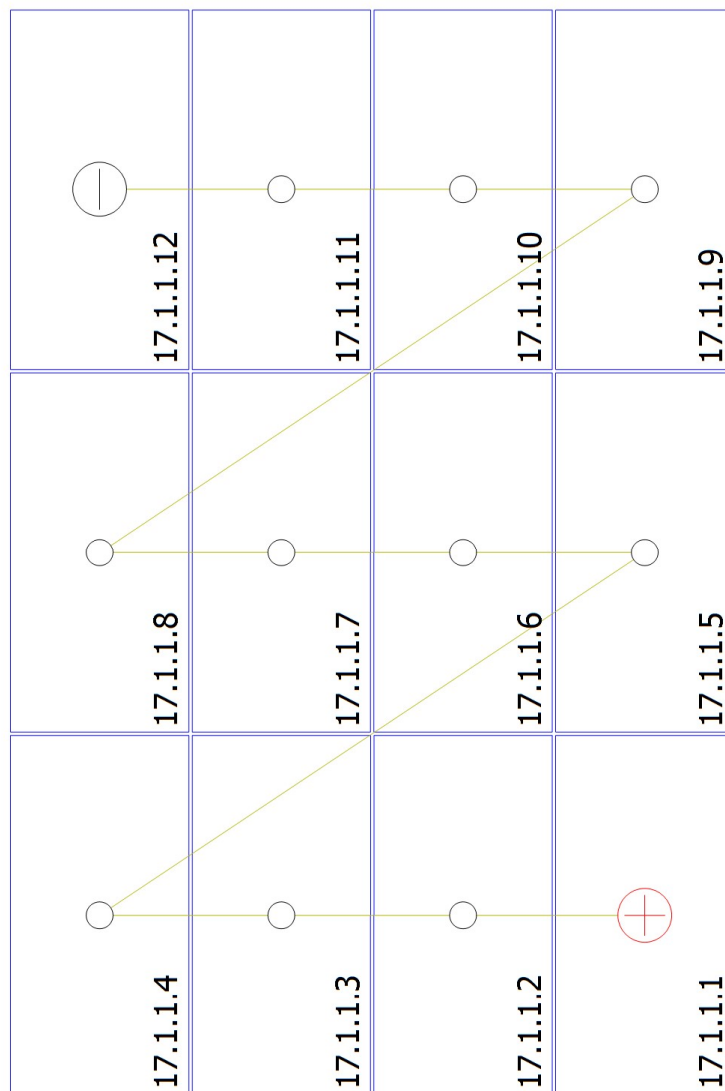


Figure: Building 11-Roof Area South

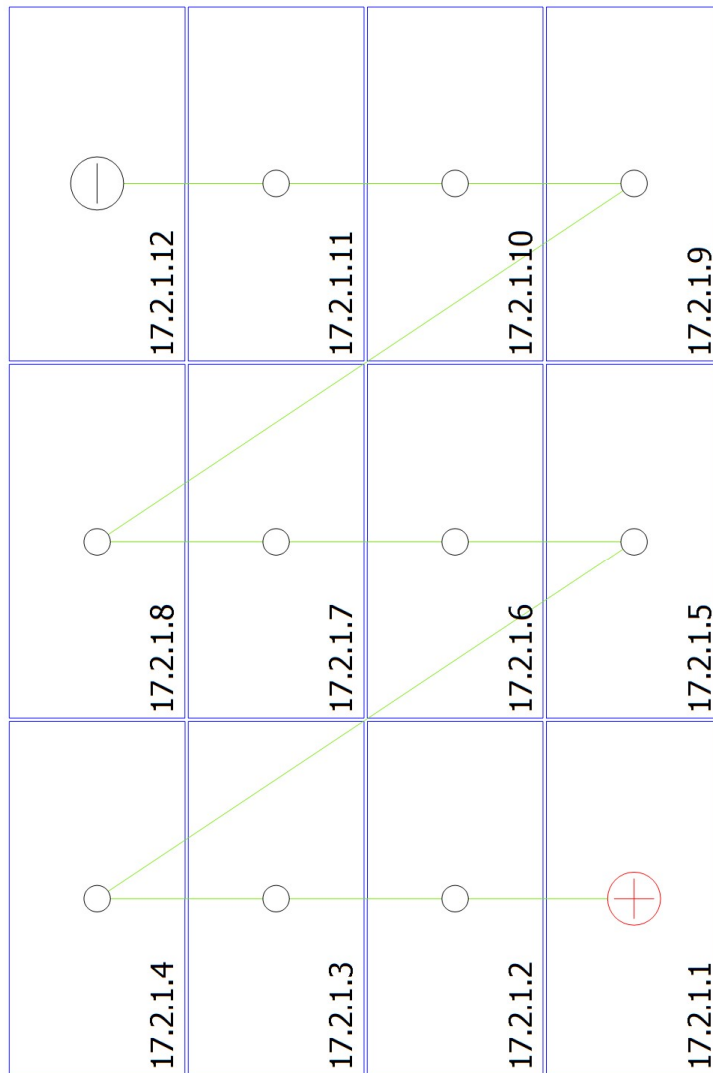


Figure: Building 11-Roof Area North

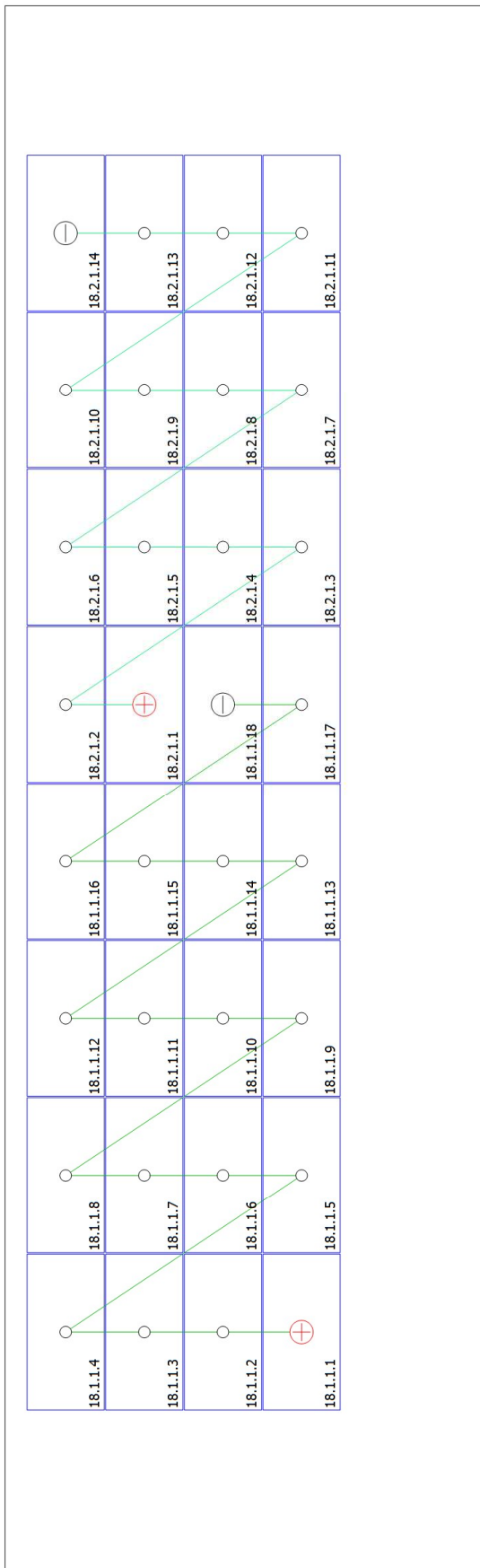


Figure: Building 12-Roof Area East

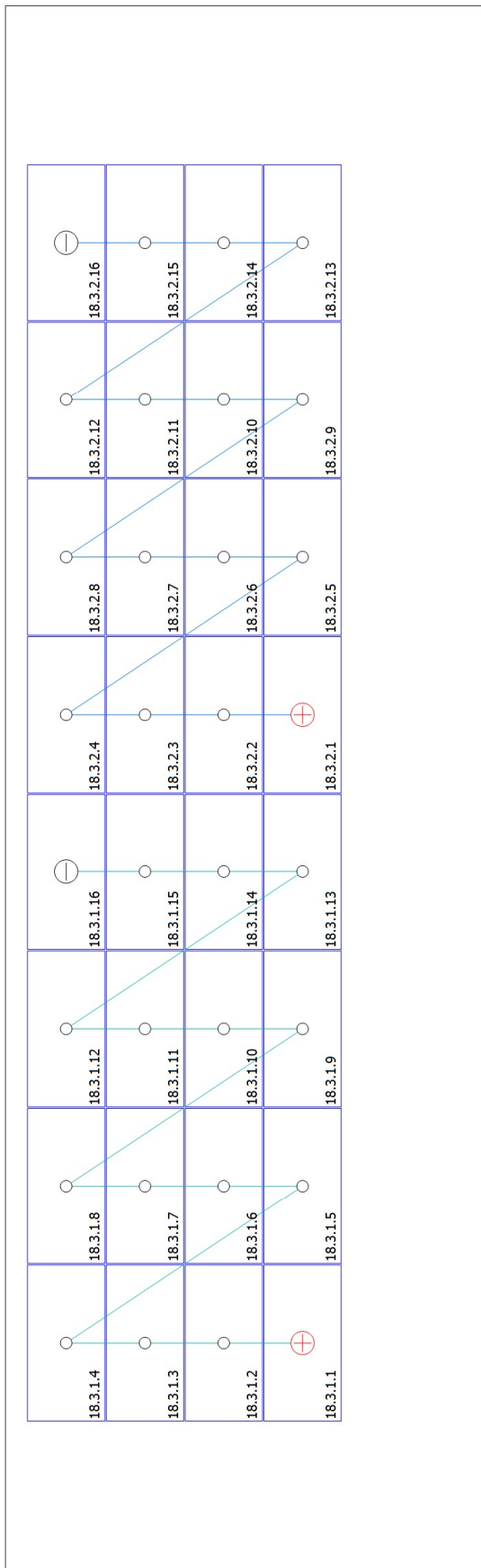


Figure: Building 12-Roof Area West

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		JA Solar Holdings Co., Ltd.	JAM72S20-460/MR	124	Piece
2	Inverter		Ginlong (Solis)	Solis-3P15K-4G	1	Piece
3	Inverter		Ginlong (Solis)	Solis-3P10K-4G	1	Piece
4	Inverter		Ginlong (Solis)	Solis-25K-5G	1	Piece
5	Components			Feed-in Meter	1	Piece
6	Components			House connection	1	Piece
7	Components			Bidirectional Meter	1	Piece

Screenshots, 3D Design Environment



Figure: Screenshot02