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Hampshire SO31 7GB

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Pasindu Liyanage
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E-Mail: pasindu.liyanage@infinity-energy.co.uk

[redacted]

Project Name: Brigden 7.43kWp-SP495-S10-SigB8.76x2

21/08/2026

Your PV system from Infinity Energy Services Ltd

Address of Installation

The Horsecroft
Greyfriars Lane
RH20 4HE



Project Overview



Figure: Overview Image, 3D Design

PV System

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

Climate Data	Shoreham-by-Sea, GBR (2001 - 2020)	
Values source	Meteonorm 9.0	
PV Generator Output	7.43	kWp
PV Generator Surface	30.6	m²
Number of PV Modules	15	
Number of Inverters	1	
No. of battery systems	1	

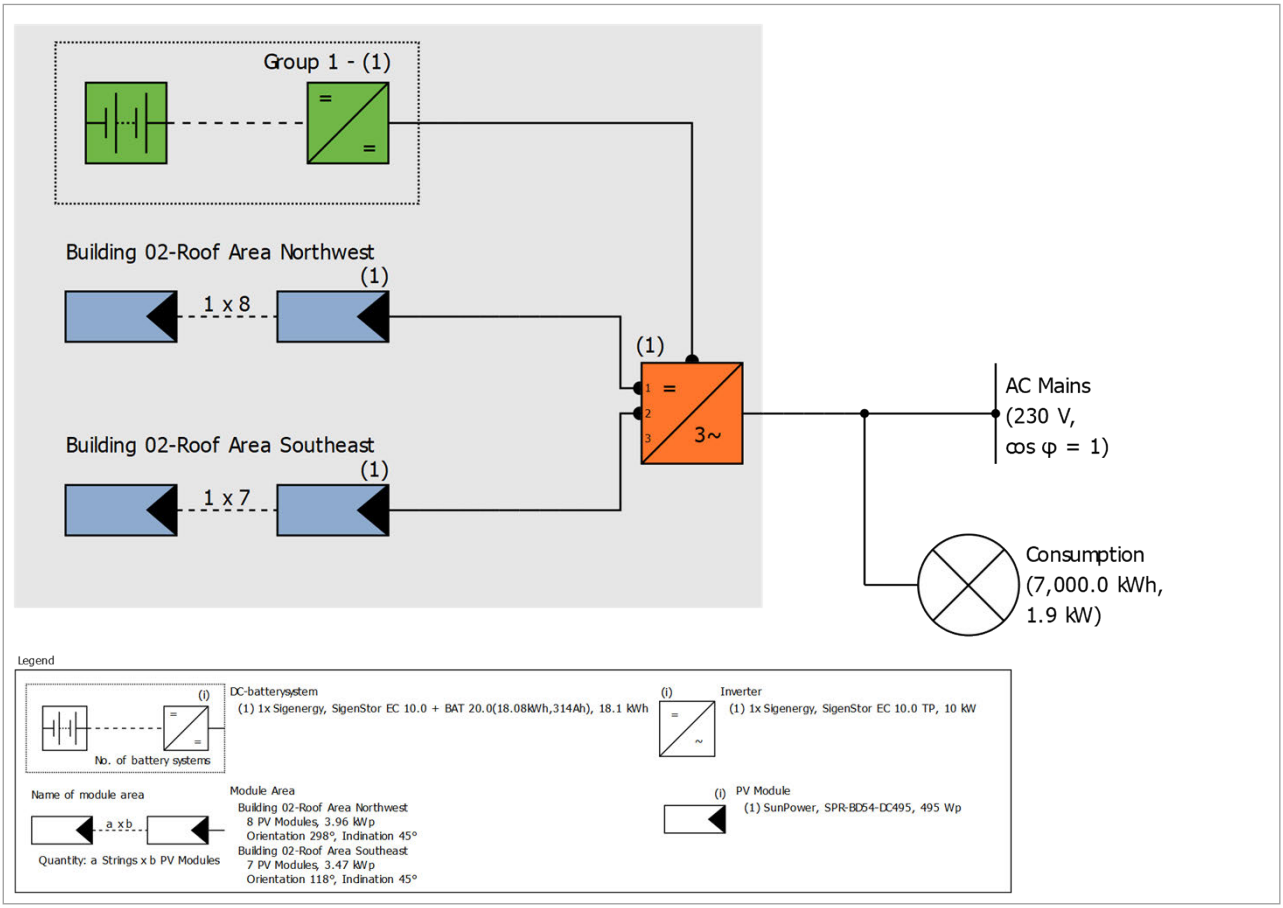


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	7.43 kWp
Spec. Annual Yield	896.84 kWh/kWp
Performance Ratio (PR)	91.70 %
Yield Reduction due to Shading	1.8 %
PV Generator Energy (AC grid) with battery	6,455 kWh/Year
Direct Own Use	4,451 kWh/Year
Grid Export	2,004 kWh/Year
Own Power Consumption	68.9 %
CO_2 Emissions avoided	2,357 kg / year
Level of Self-sufficiency	63.4 %

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 and Battery Systems

Climate Data

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

Consumption

Total Consumption	7000 kWh
UK Household	7000 kWh
Load Peak	1.9 kW

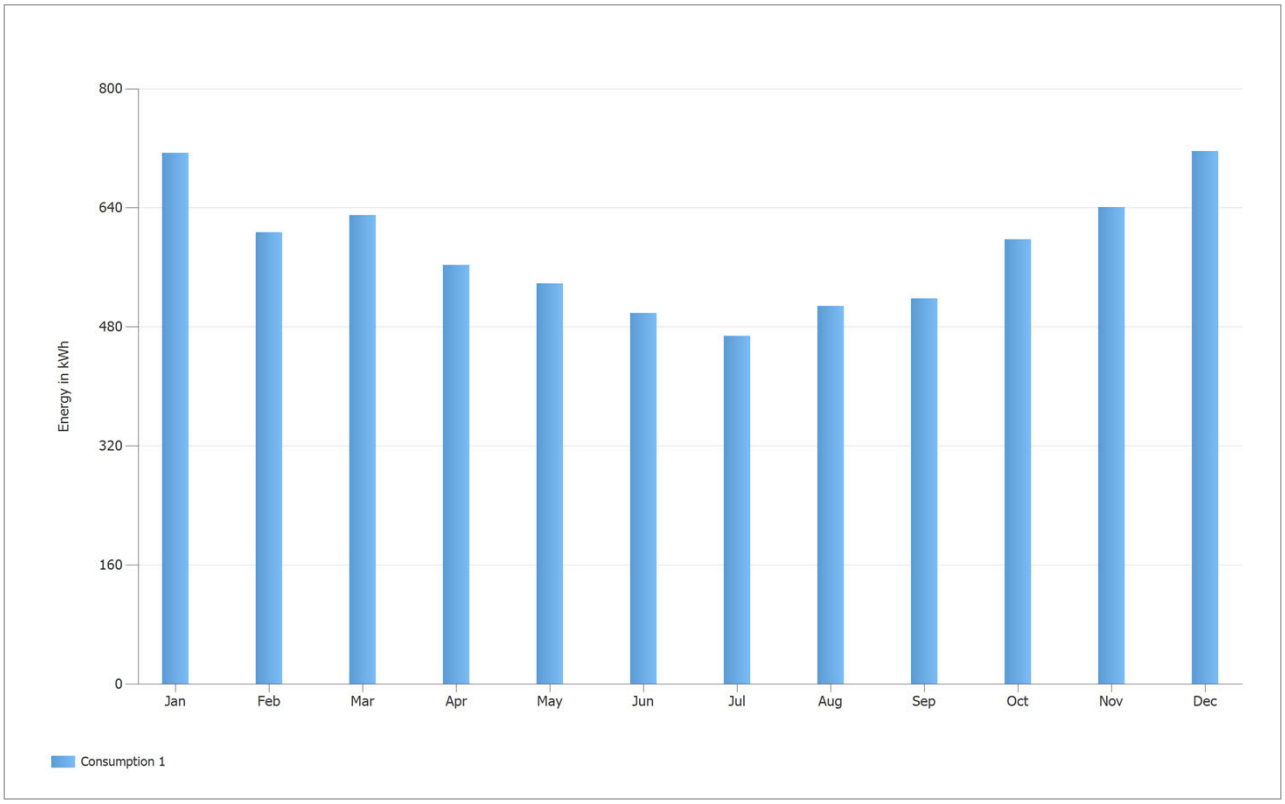


Figure: Consumption

Module Areas

1. Module Area - Building 02-Roof Area Northwest

PV Generator, 1. Module Area - Building 02-Roof Area Northwest

Name	Building 02-Roof Area Northwest
PV Modules	8 x SPR-BD54-DC495 (v1)
Manufacturer	SunPower
Inclination	45 °
Orientation	Northwest 298 °
Installation Type	Roof parallel
PV Generator Surface	16.3 m²



Figure: 1. Module Area - Building 02-Roof Area Northwest

2. Module Area - Building 02-Roof Area Southeast

PV Generator, 2. Module Area - Building 02-Roof Area Southeast

Name	Building 02-Roof Area Southeast
PV Modules	7 x SPR-BD54-DC495 (v1)
Manufacturer	SunPower
Inclination	45 °
Orientation	Southeast 118 °
Installation Type	Roof parallel
PV Generator Surface	14.3 m²

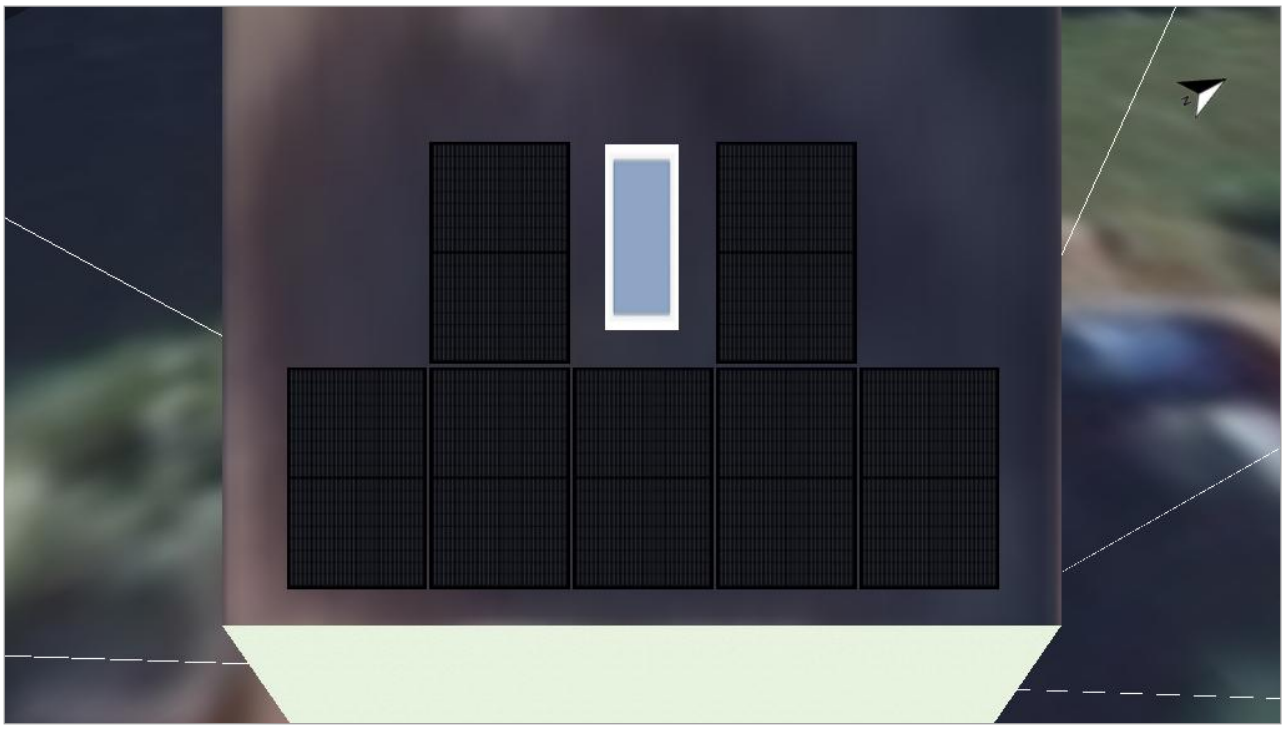


Figure: 2. Module Area - Building 02-Roof Area Southeast

Horizon Line, 3D Design

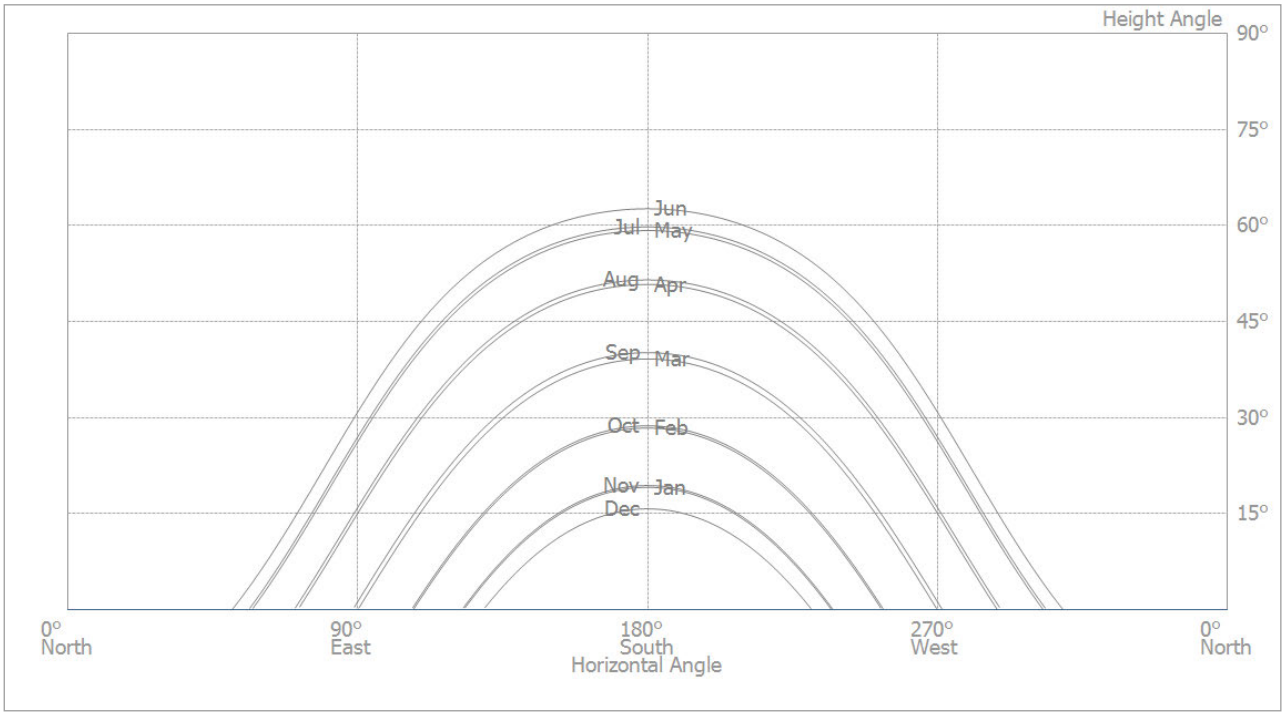


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1

Module Areas	Building 02-Roof Area Northwest + Building 02-Roof Area Southeast
Inverter 1	
Model	SigenStor EC 10.0 TP (v2)
Manufacturer	Sigenergy
Quantity	1
Sizing Factor	74.3 %
Configuration	MPP 1: 1 x 8
	MPP 2: 1 x 7
	MPP 3: not allocated

AC Mains

AC Mains

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

Battery Systems

Battery System - Group 1

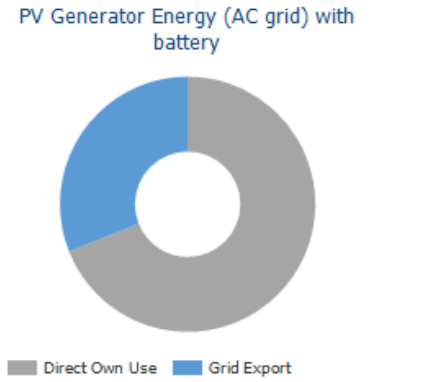
Model	SigenStor EC 10.0 + BAT 20.0(18.08kWh,314Ah) (v1)	
Manufacturer	Sigenergy	
Quantity	1	
Battery Inverter		
Type of coupling	DC intermediate circuit coupling	
Nominal output	10	kW
Battery		
Manufacturer	Sigenergy	
Model	SigenStor BAT 10.0 (314) (v1)	
Quantity	2	
Battery Energy	18.1	kWh
Battery Type	Lithium iron phosphate	

Simulation Results

Results Total System

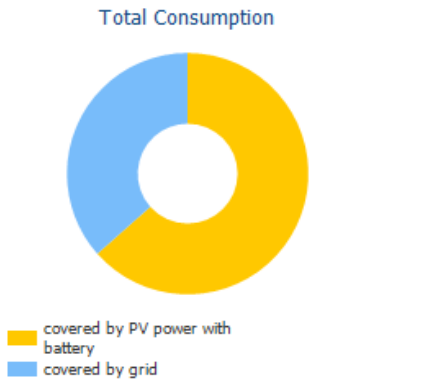
PV System

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Spec. Annual Yield	896.84	kWh/kWp
Performance Ratio (PR)	91.70	%
Yield Reduction due to Shading	1.8	%
PV Generator Energy (AC grid) with battery	6,455	kWh/Year
Direct Own Use	4,451	kWh/Year
Grid Export	2,004	kWh/Year
Own Power Consumption	68.9	%
CO_2 Emissions avoided	2,357	kg / year



Appliances

Appliances	7,000	kWh/Year
Standby Consumption (Inverter)	15	kWh/Year
Total Consumption	7,015	kWh/Year
covered by PV power with battery	4,451	kWh/Year
covered by grid	2,564	kWh/Year
Solar Fraction	63.4	%



Battery System

Charge at beginning	18	kWh
Battery Charge (PV System)	2,317	kWh/Year
Battery Energy for the Covering of Consumption	2,099	kWh/Year
Battery discharge into the grid	0	kWh/Year
Losses due to charging/discharging	229	kWh/Year
Losses in Battery	8	kWh/Year
Cycle Load	1.5	%
Service Life	>20	Years

Level of Self-sufficiency

Total Consumption	7,015	kWh/Year
covered by grid	2,564	kWh/Year
Level of Self-sufficiency	63.4	%

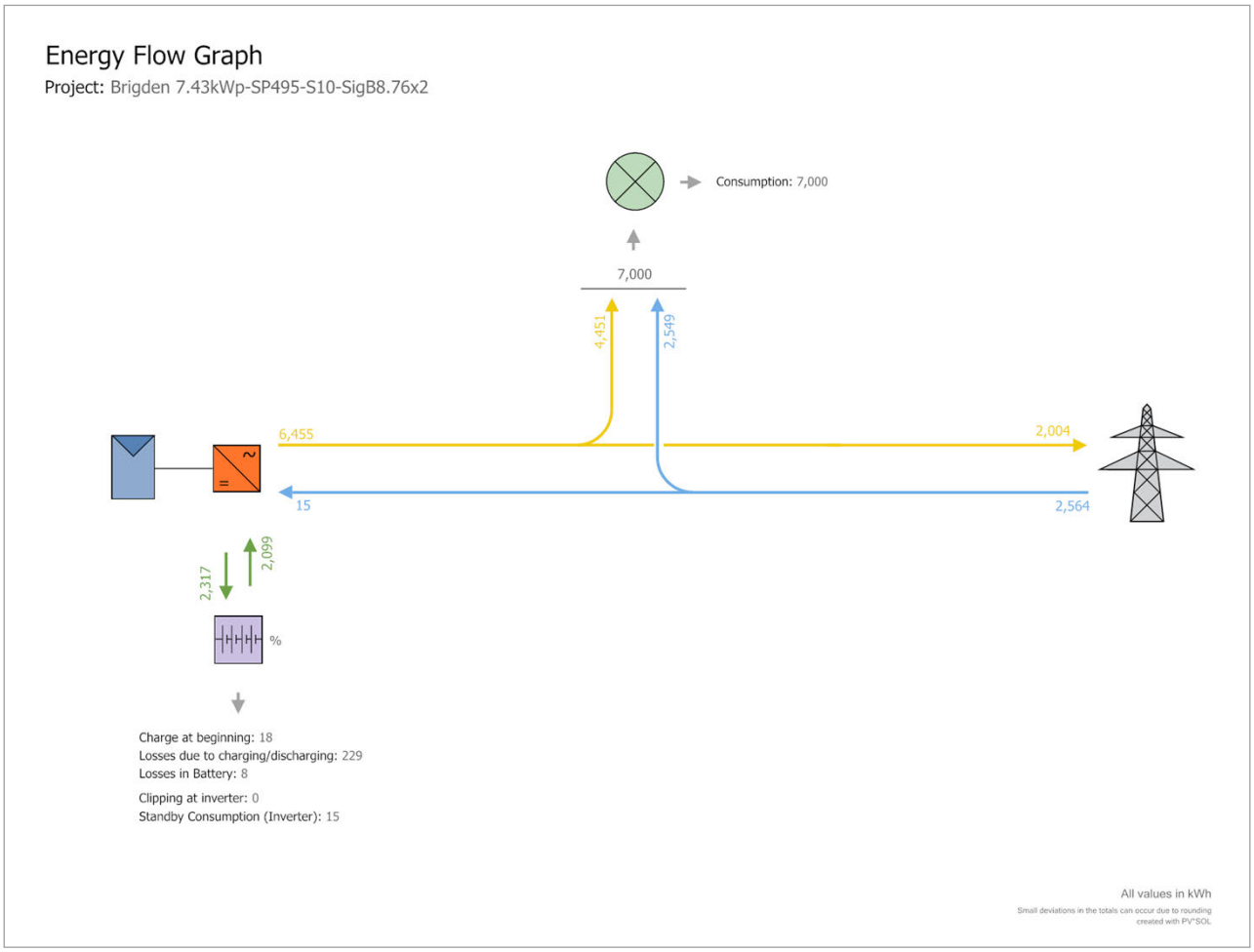


Figure: Energy flow

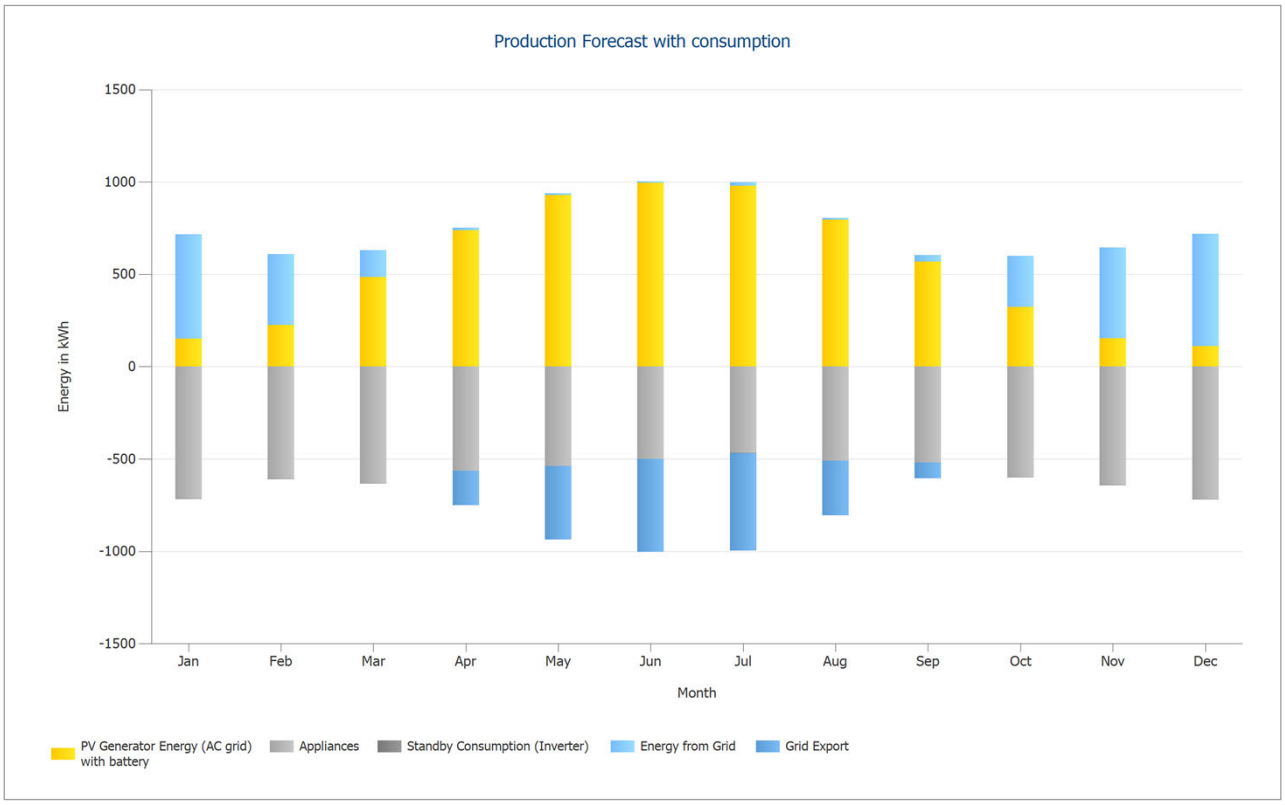


Figure: Production Forecast with consumption

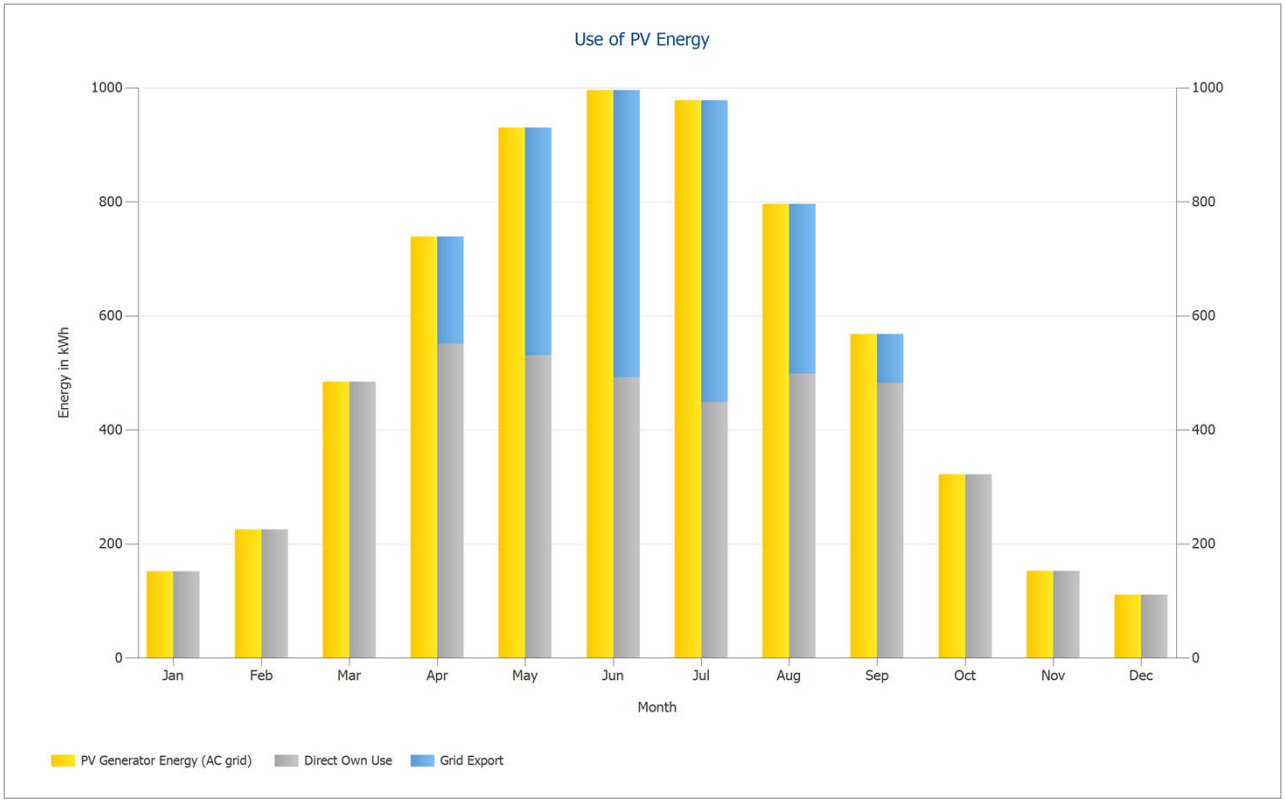


Figure: Use of PV Energy

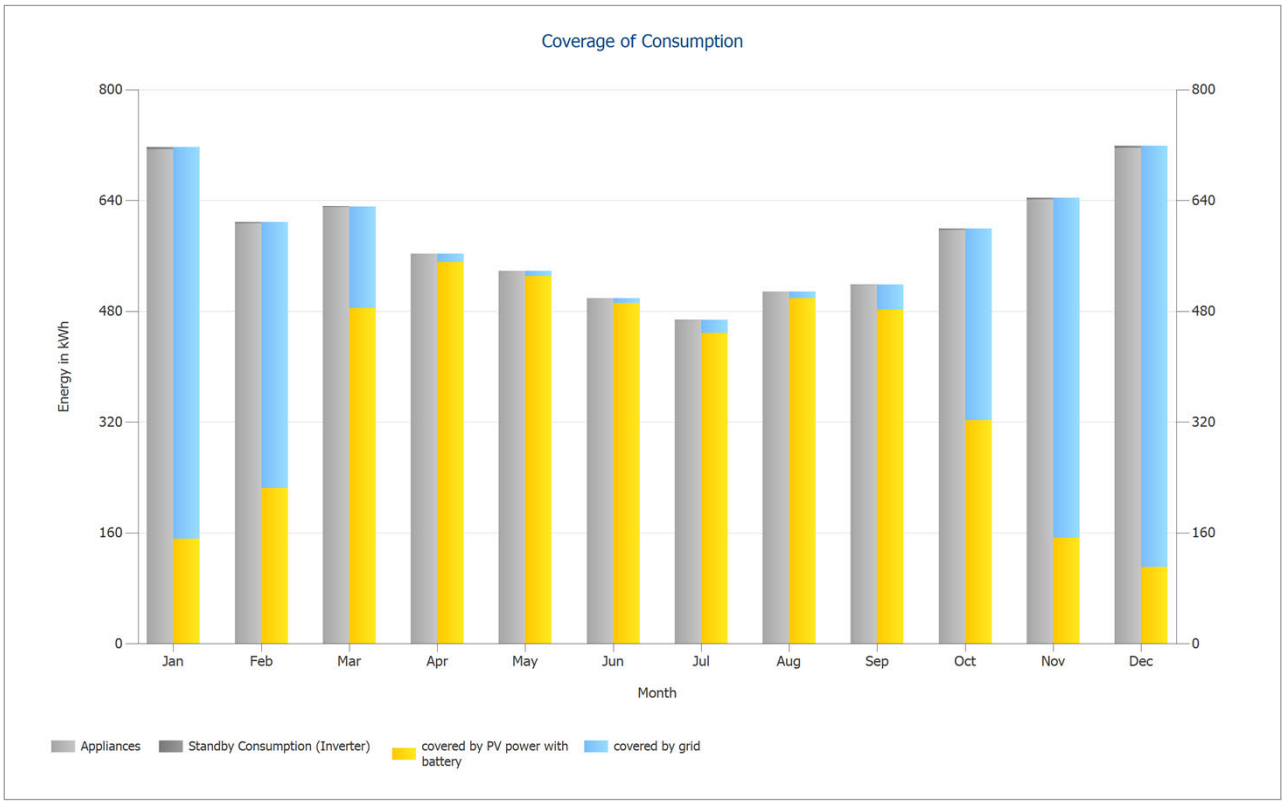


Figure: Coverage of Consumption

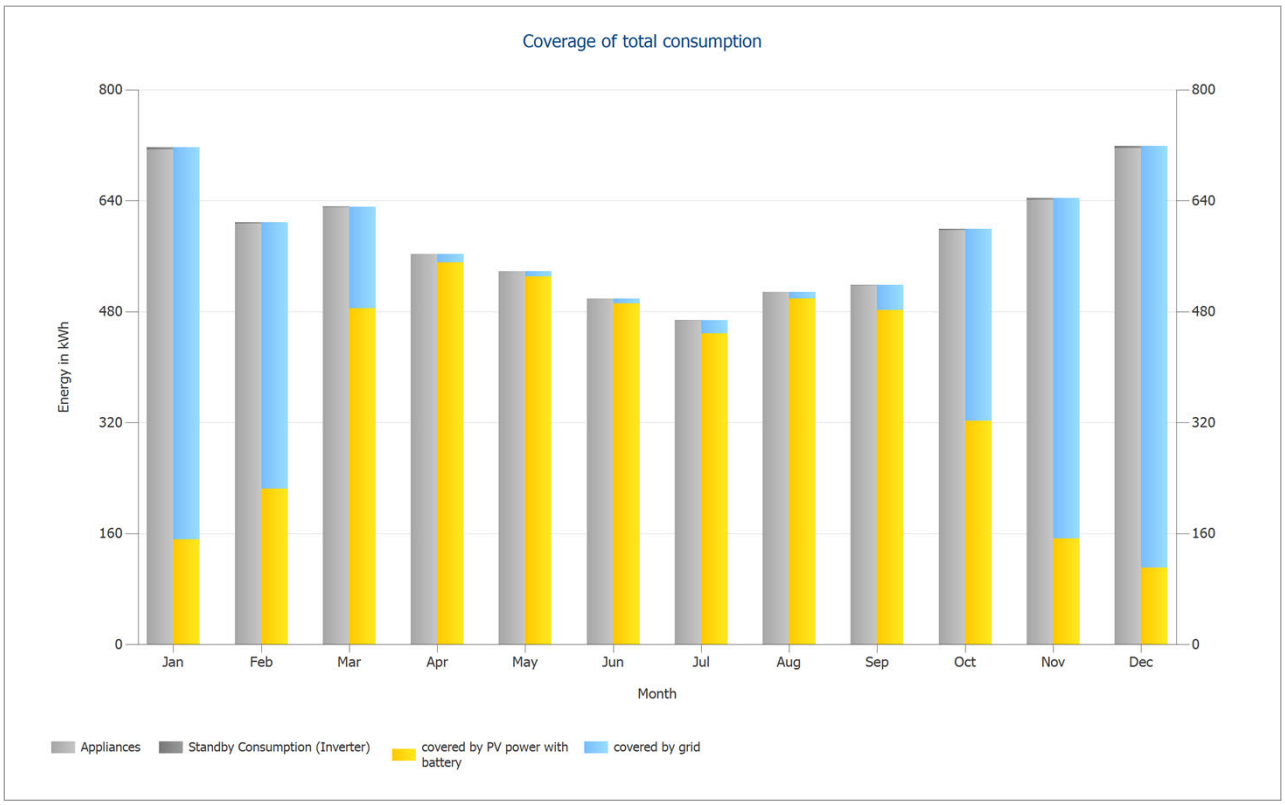


Figure: Coverage of total consumption

Plans and parts list

Circuit Diagram

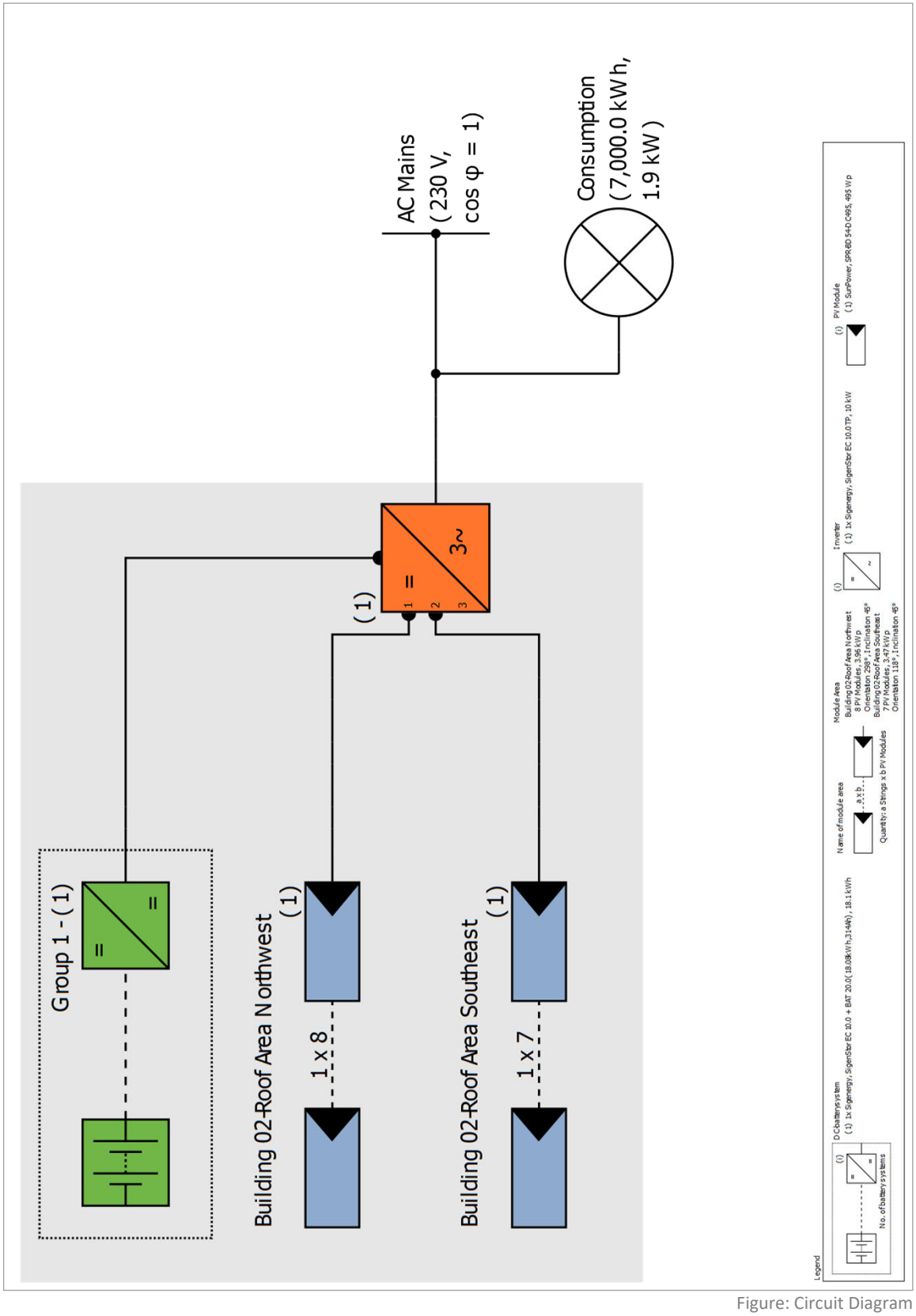


Figure: Circuit Diagram

Overview plan

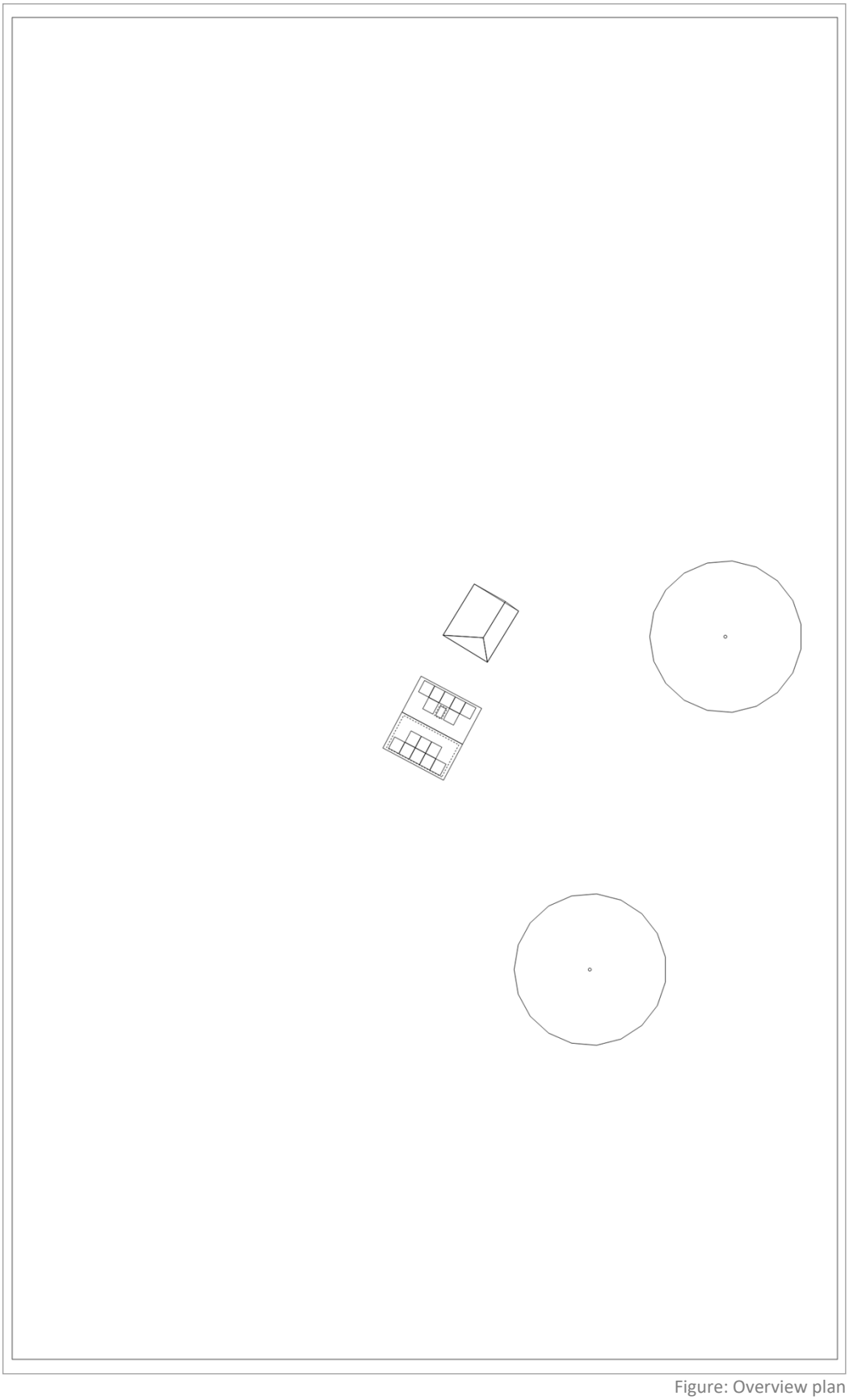


Figure: Overview plan

Dimensioning Plan

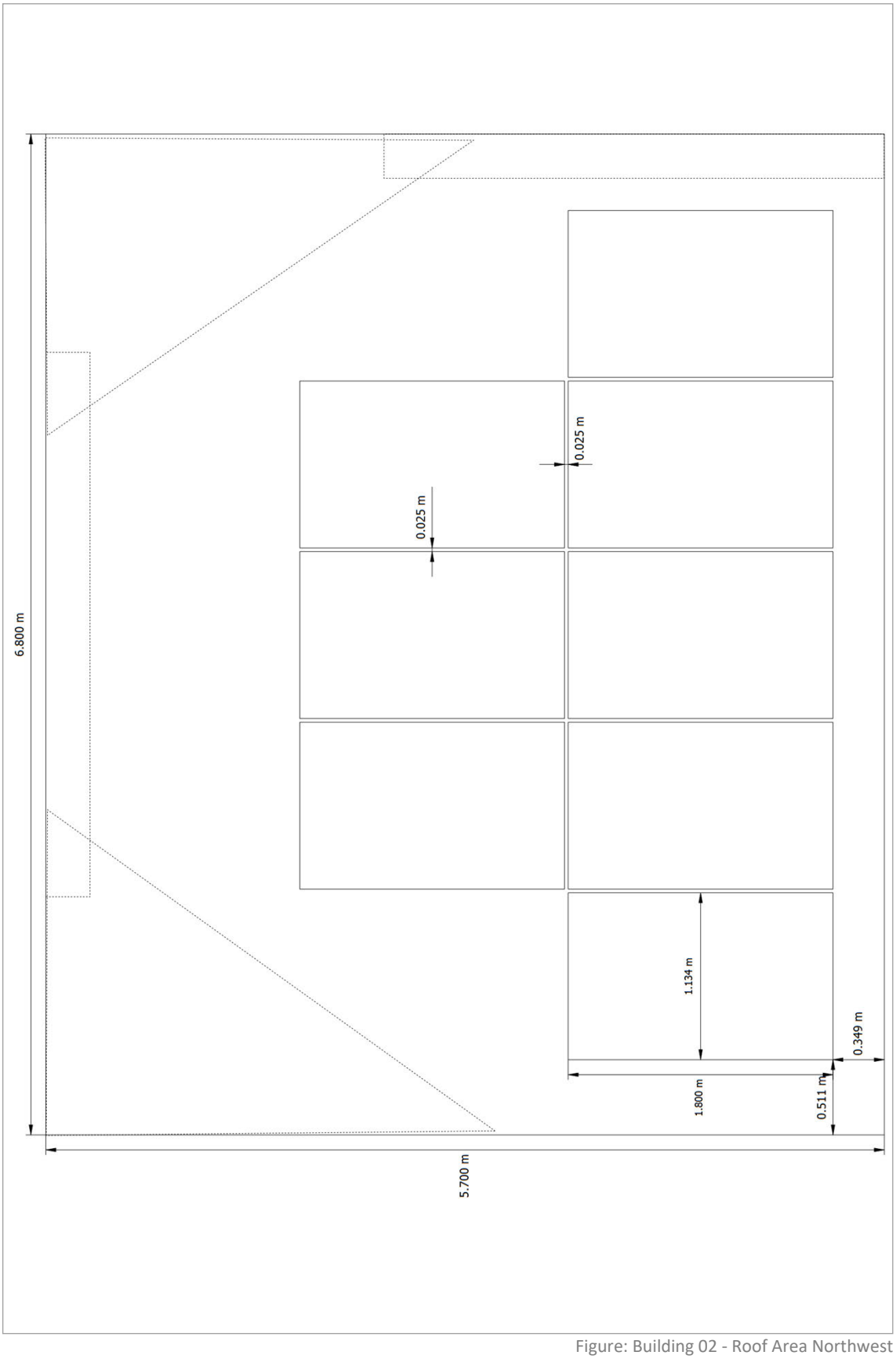


Figure: Building 02 - Roof Area Northwest

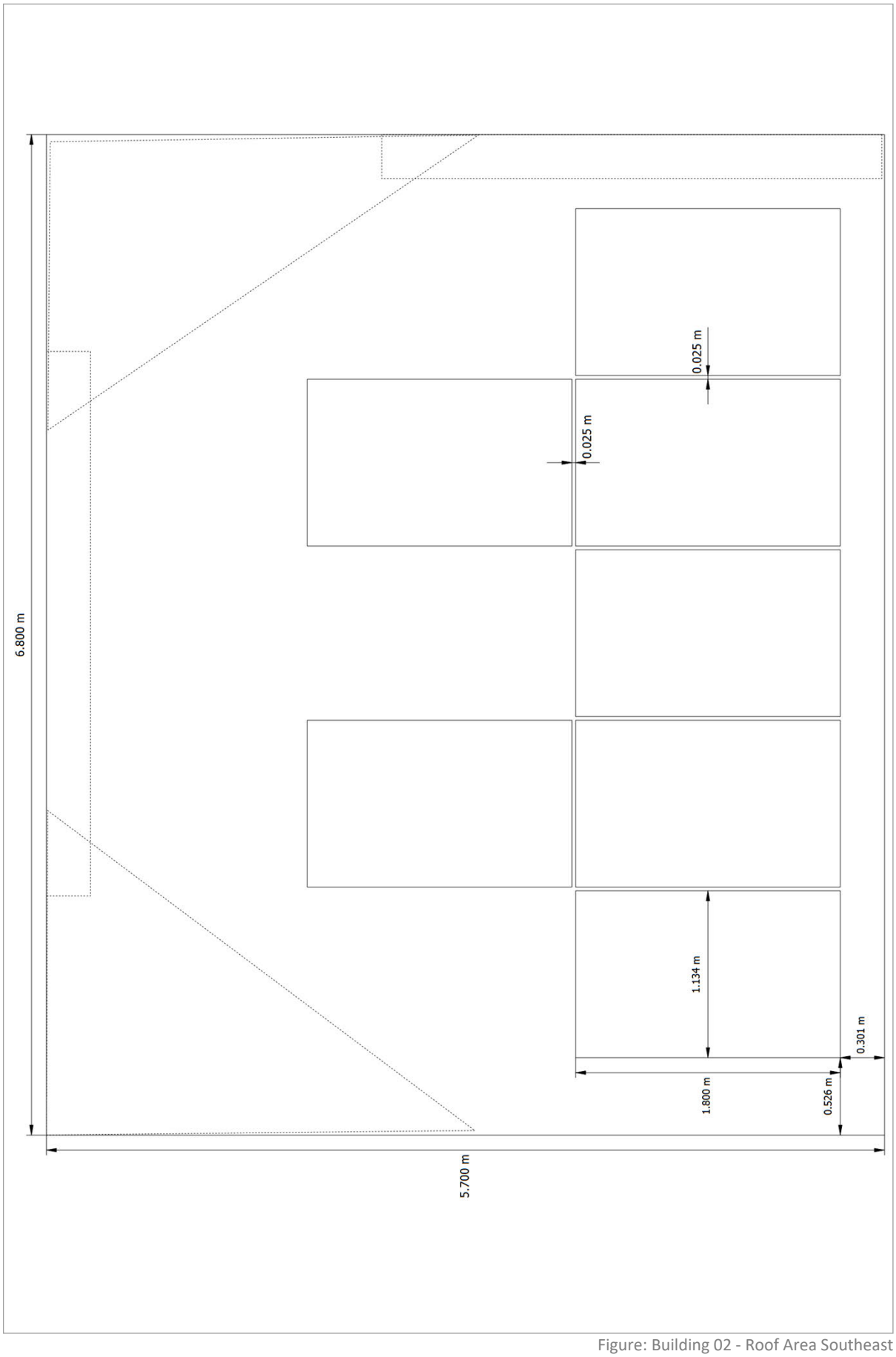


Figure: Building 02 - Roof Area Southeast

String Plan

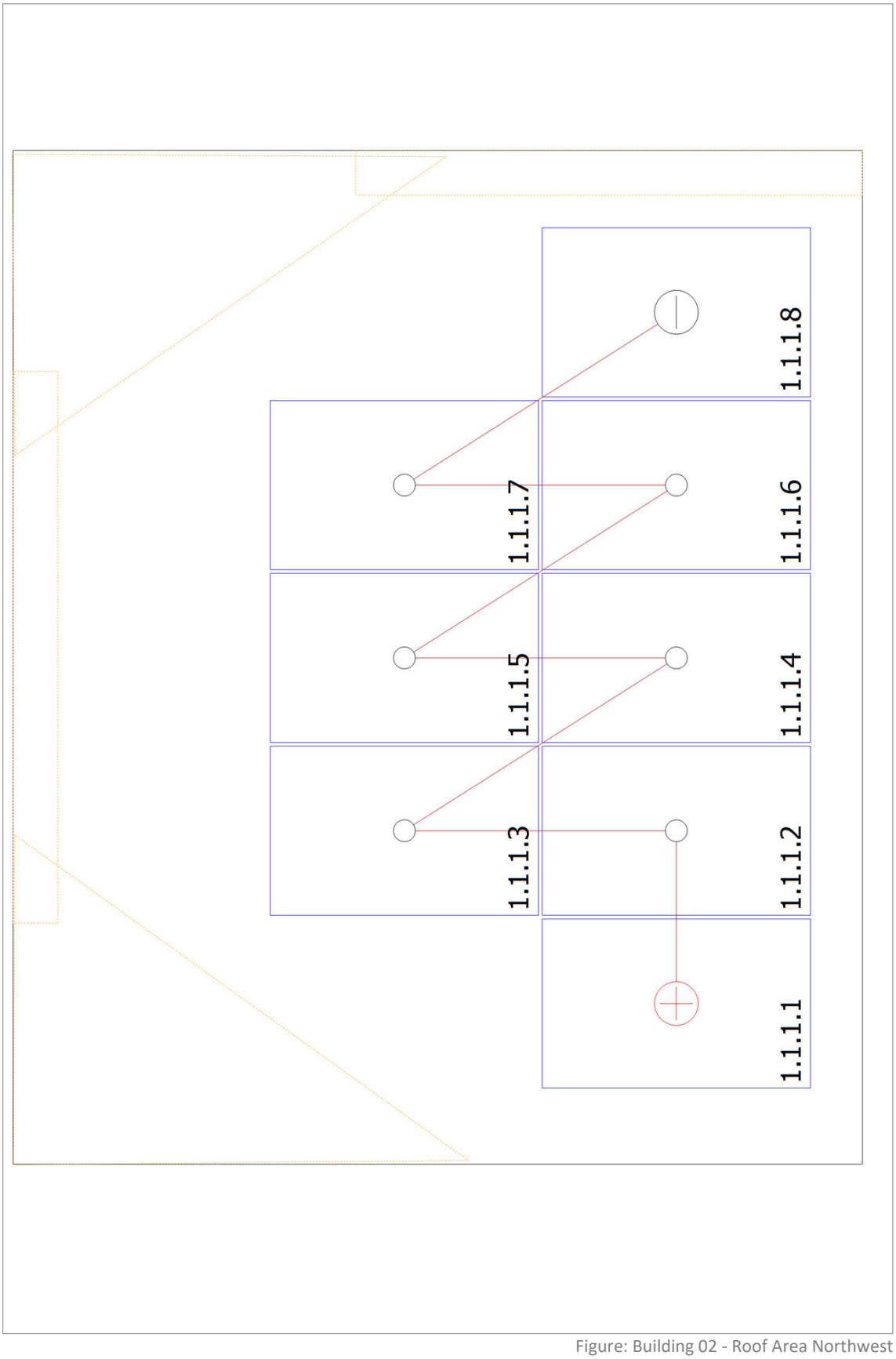


Figure: Building 02 - Roof Area Northwest

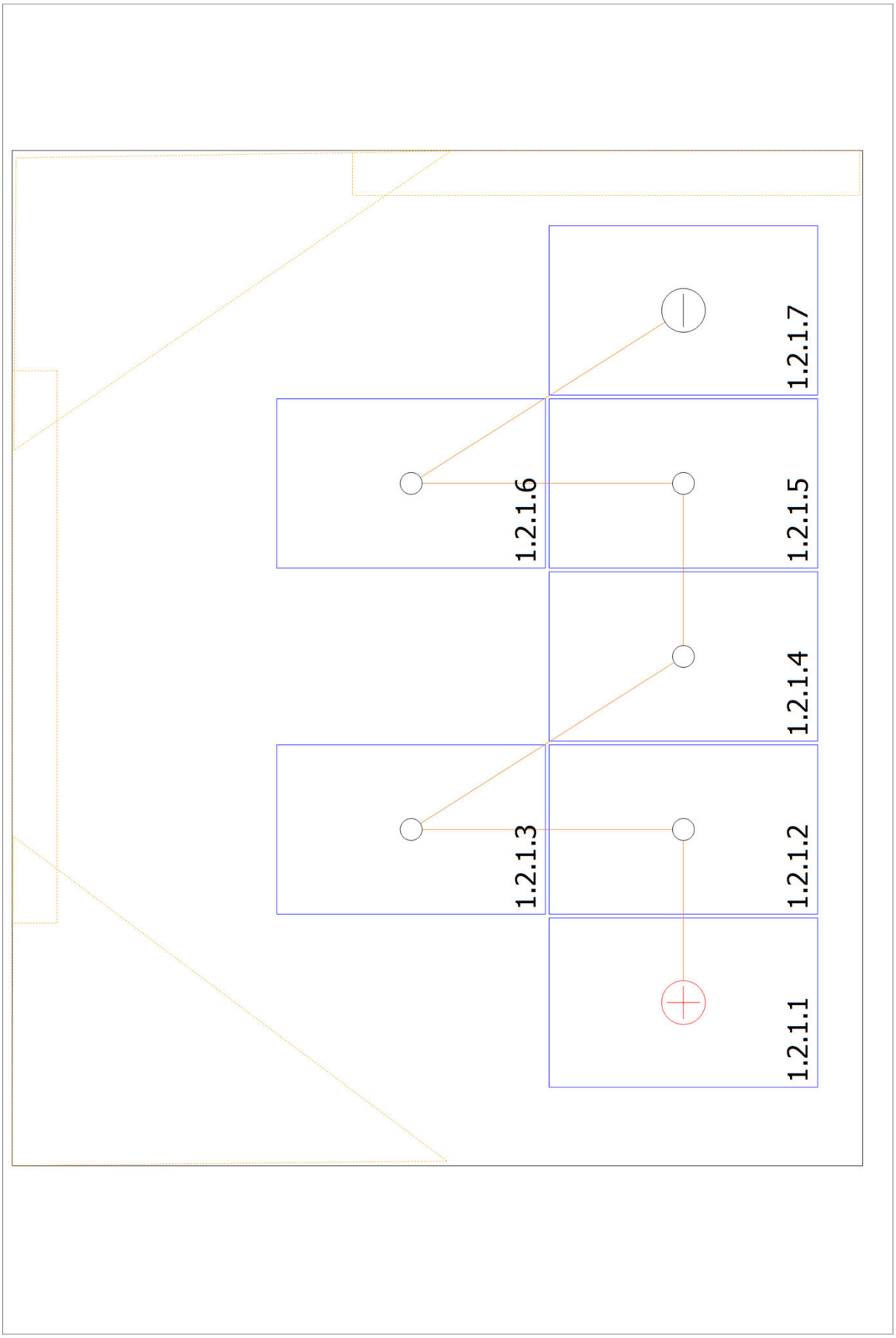


Figure: Building 02 - Roof Area Southeast

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		SunPower	SPR-BD54-DC495	15	Piece
2	Inverter		Sigenergy	SigenStor EC 10.0 TP	1	Piece
3	Battery System		Sigenergy	SigenStor EC 10.0 + BAT 20.0(18.08kWh,314Ah)	1	Piece

Screenshots, 3D Design

Environment



Figure: Screenshot02

Configuration

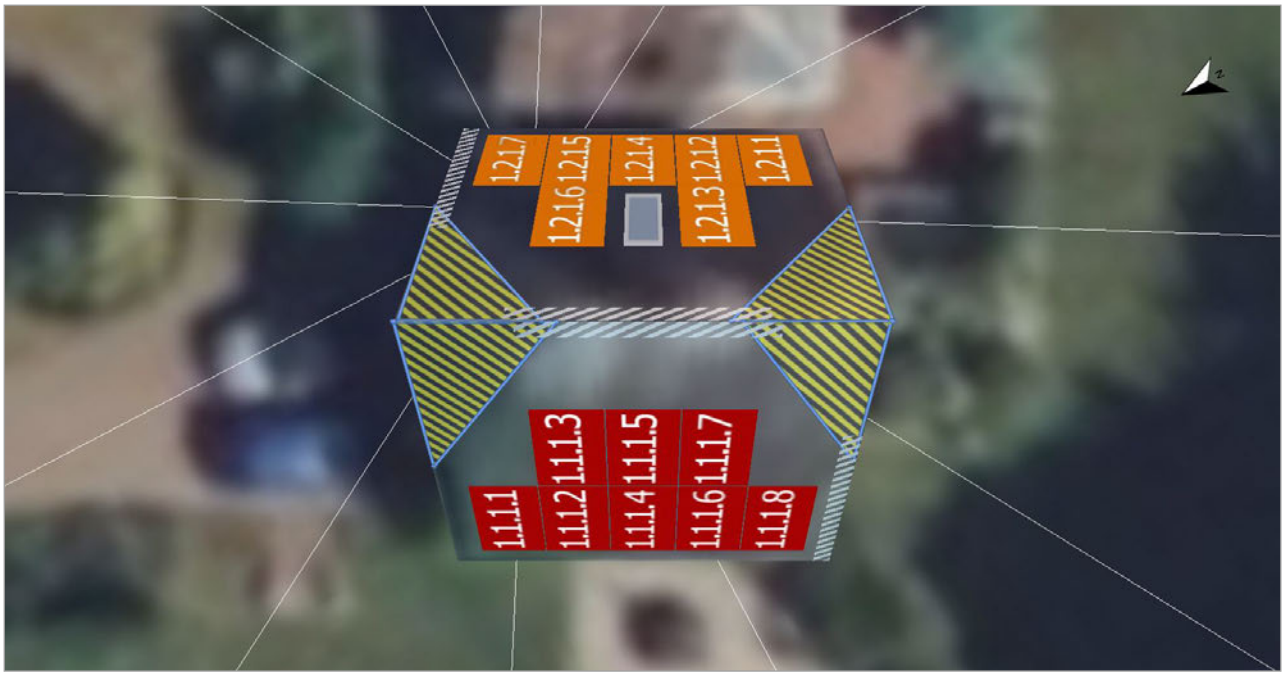


Figure: Screenshot01

Shading



Figure: Screenshot03

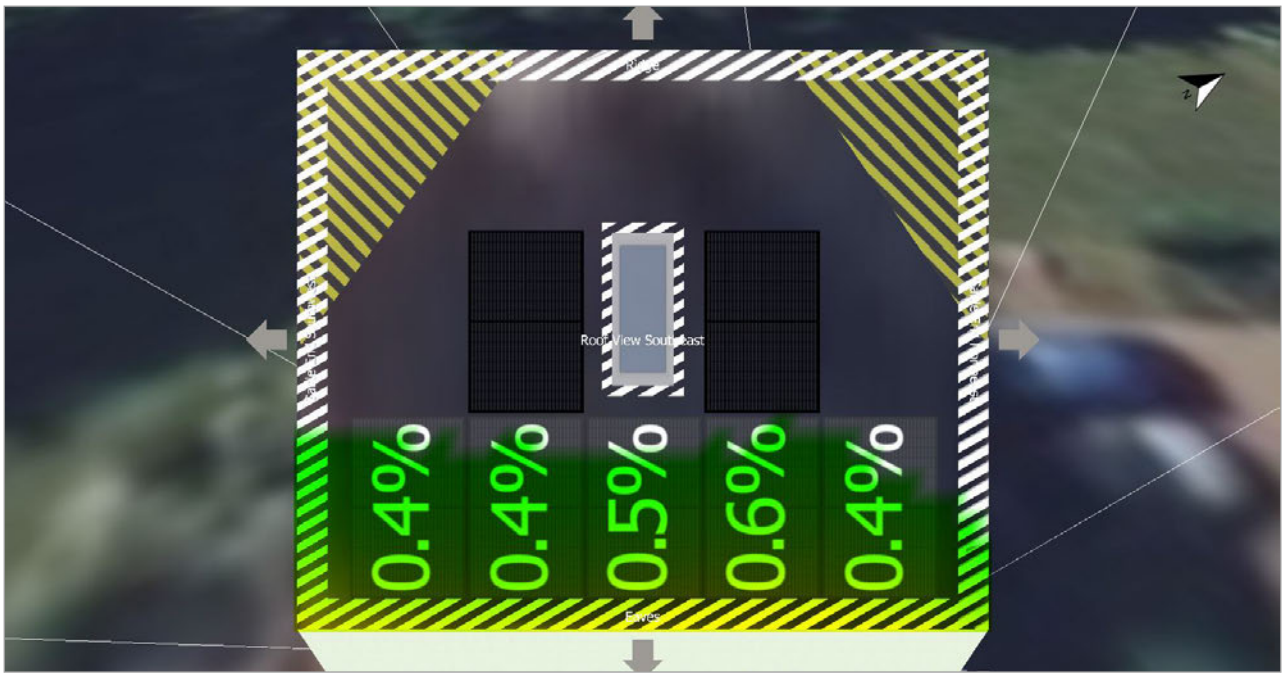


Figure: Screenshot04