

2 Coombes Lane Glossop Derbyshire SK13 5DG

Project Name: 2 Coombes Lane Glossop Derbyshire SK13 5DG

19/10/2023

Your PV system

Address of Installation

2 Coombes Lane Glossop Derbyshire SK13 5DG



Project Overview



Figure: Overview Image, 3D Design

PV System

3D, Grid-connected PV System with Electrical Appliances

Climate Data	Glossop, GBR (1996 - 2015)
Values source	Meteonorm 8.1(i)
PV Generator Output	2.03 kWp
PV Generator Surface	9.8 m ²
Number of PV Modules	5
Number of Inverters	1

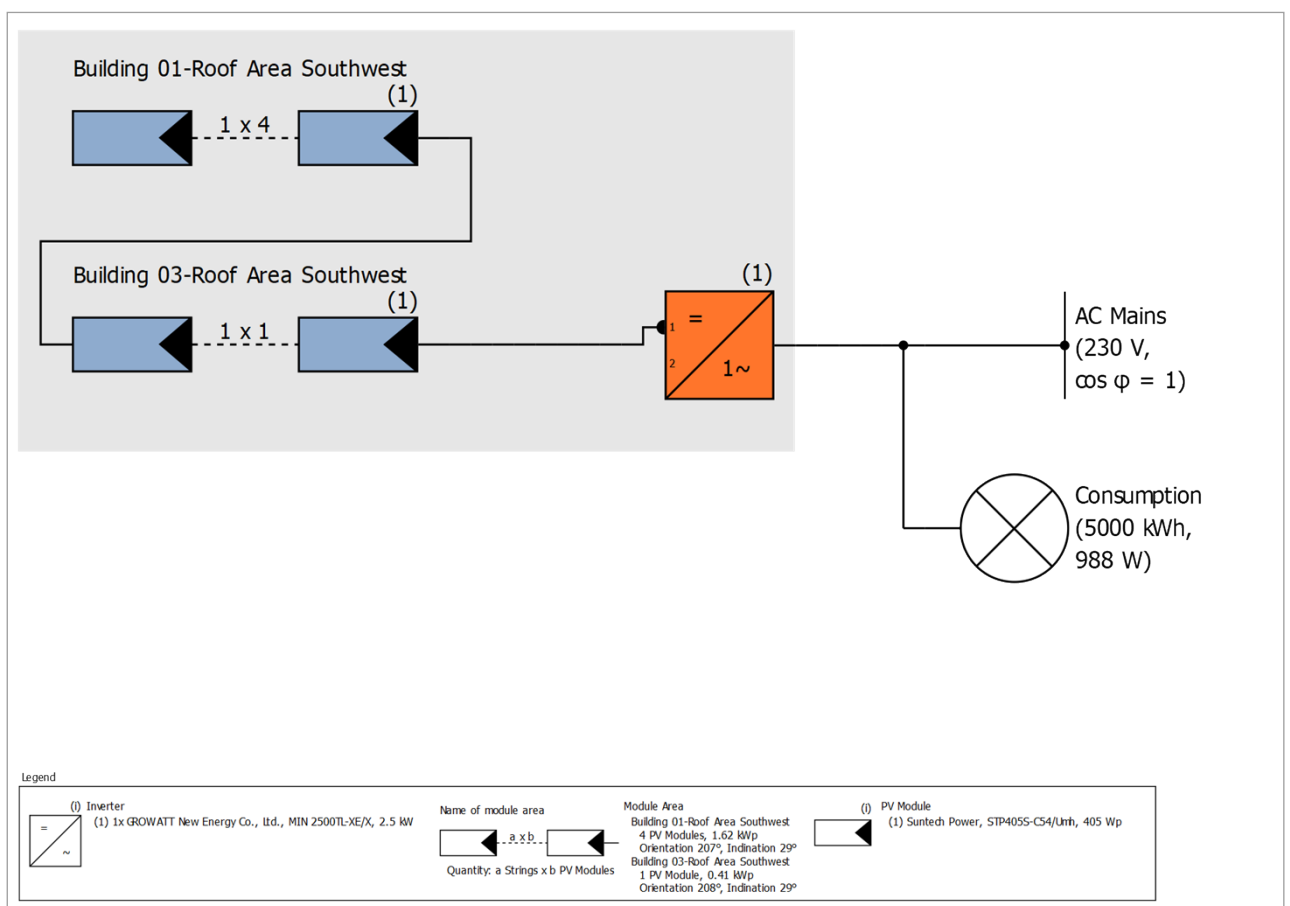


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	2.03 kWp
Spec. Annual Yield	991.38 kWh/kWp
Performance Ratio (PR)	88.67 %
Yield Reduction due to Shading	4.4 %/Year
PV Generator Energy (AC grid)	2,011 kWh/Year
Own Consumption	1,585 kWh/Year
Down-regulation at Feed-in Point	0 kWh/Year
Grid Feed-in	426 kWh/Year
Own Power Consumption	78.8 %
CO ₂ Emissions avoided	944 kg / year
Level of Self-sufficiency	31.7 %

Financial Analysis

Your Gain

Total investment costs	0.00 £
Internal Rate of Return (IRR)	268.38 %
Amortization Period	0.0 Years
Electricity Production Costs	0 £/kWh
Energy Balance/Feed-in Concept	Surplus Feed-in

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	Glossop, 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	5000 kWh
Standard Home All Day	5000 kWh
Load Peak	1 kW

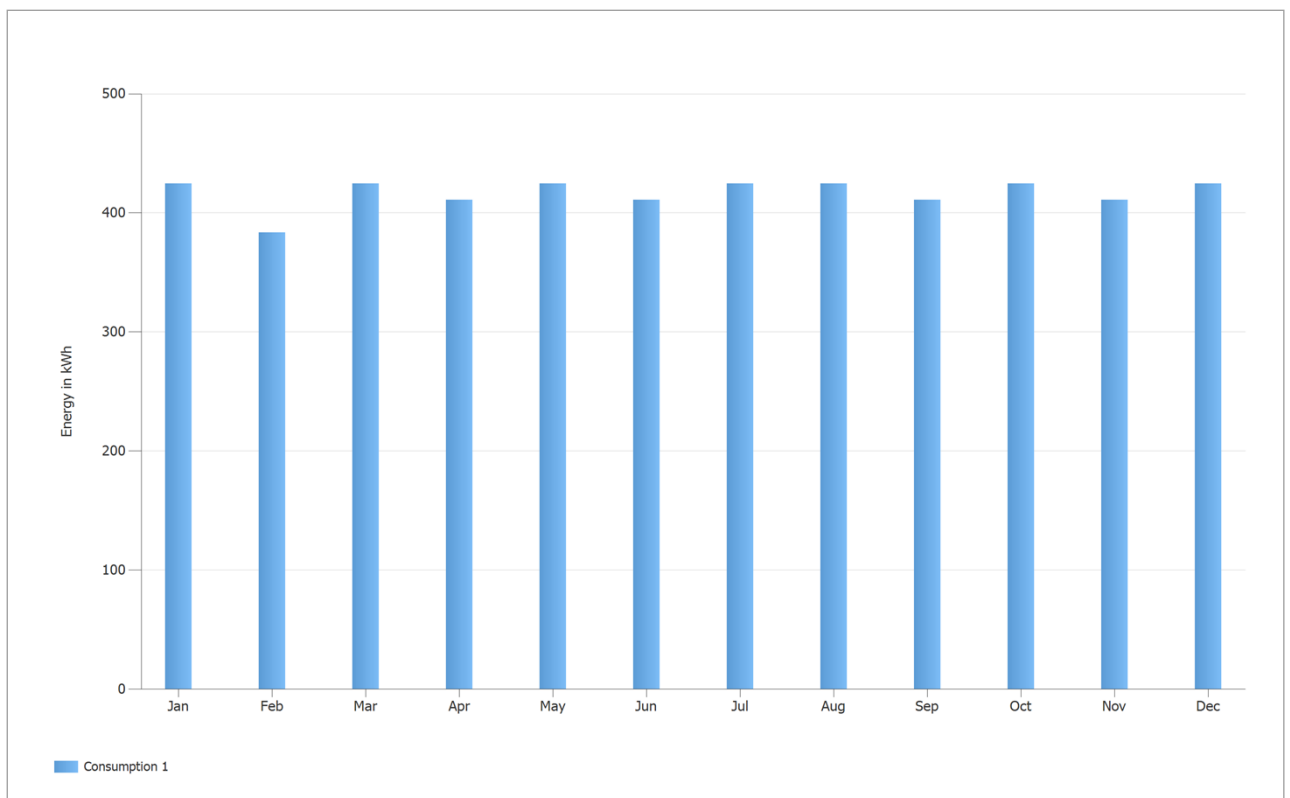


Figure: Consumption

Module Areas

1. Module Area - Building 01-Roof Area Southwest

PV Generator, 1. Module Area - Building 01-Roof Area Southwest

Name	Building 01-Roof Area Southwest
PV Modules	4 x STP405S-C54/Umh (v1)
Manufacturer	Suntech Power
Inclination	29 °
Orientation	Southwest 207 °
Installation Type	Roof parallel
PV Generator Surface	7.8 m ²

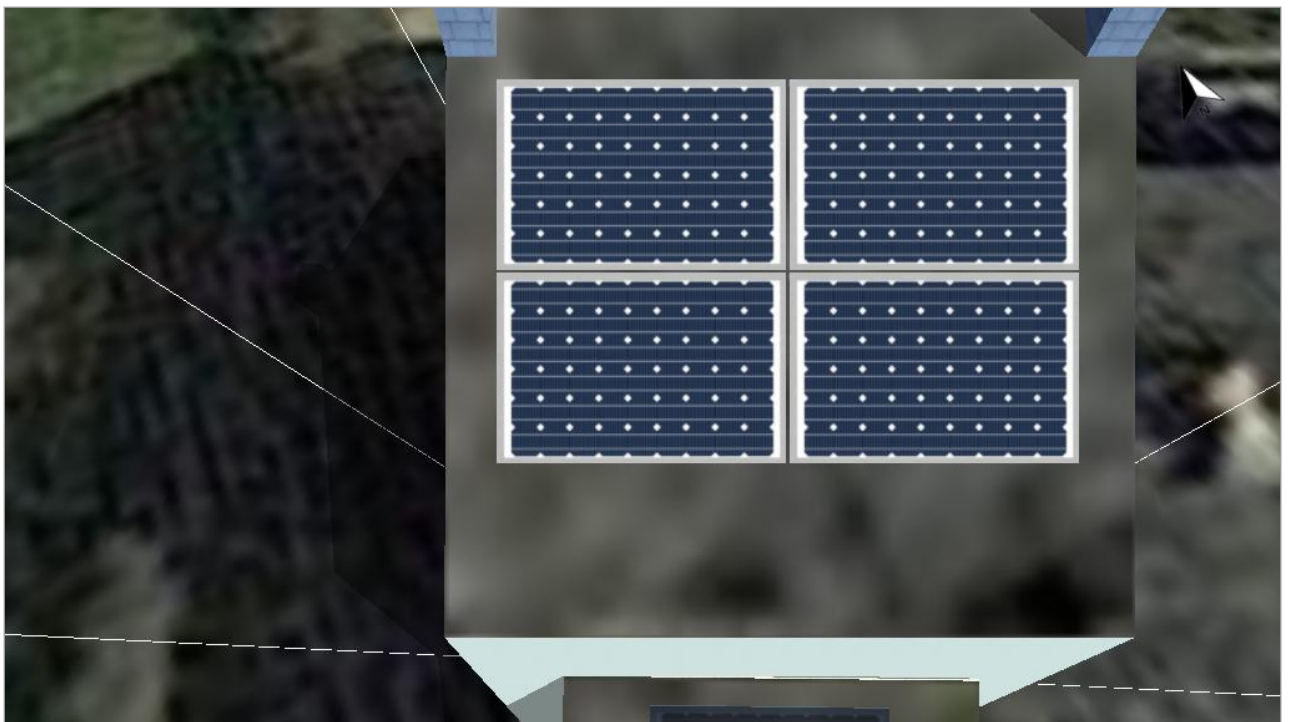


Figure: 1. Module Area - Building 01-Roof Area Southwest

2. Module Area - Building 03-Roof Area Southwest

PV Generator, 2. Module Area - Building 03-Roof Area Southwest

Name	Building 03-Roof Area Southwest
PV Modules	1 x STP405S-C54/Umh (v1)
Manufacturer	Suntech Power
Inclination	29 °
Orientation	Southwest 208 °
Installation Type	Roof parallel
PV Generator Surface	2.0 m²

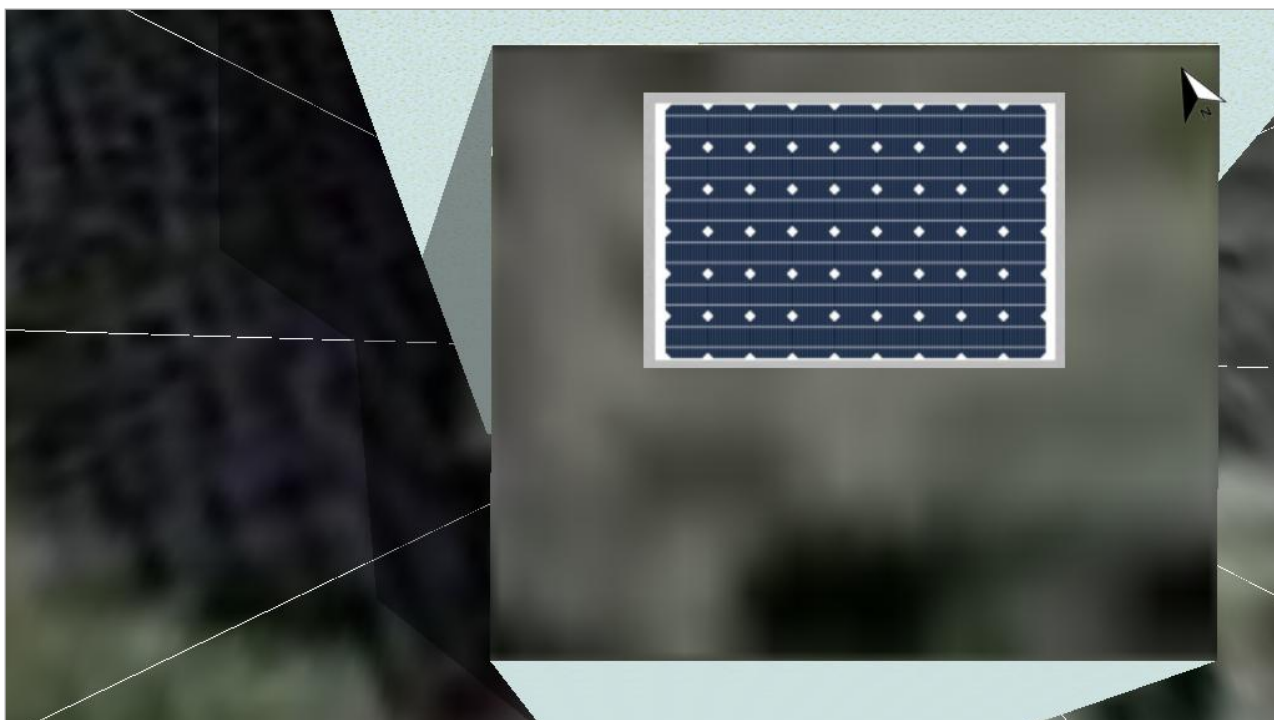


Figure: 2. Module Area - Building 03-Roof Area Southwest

Horizon Line, 3D Design

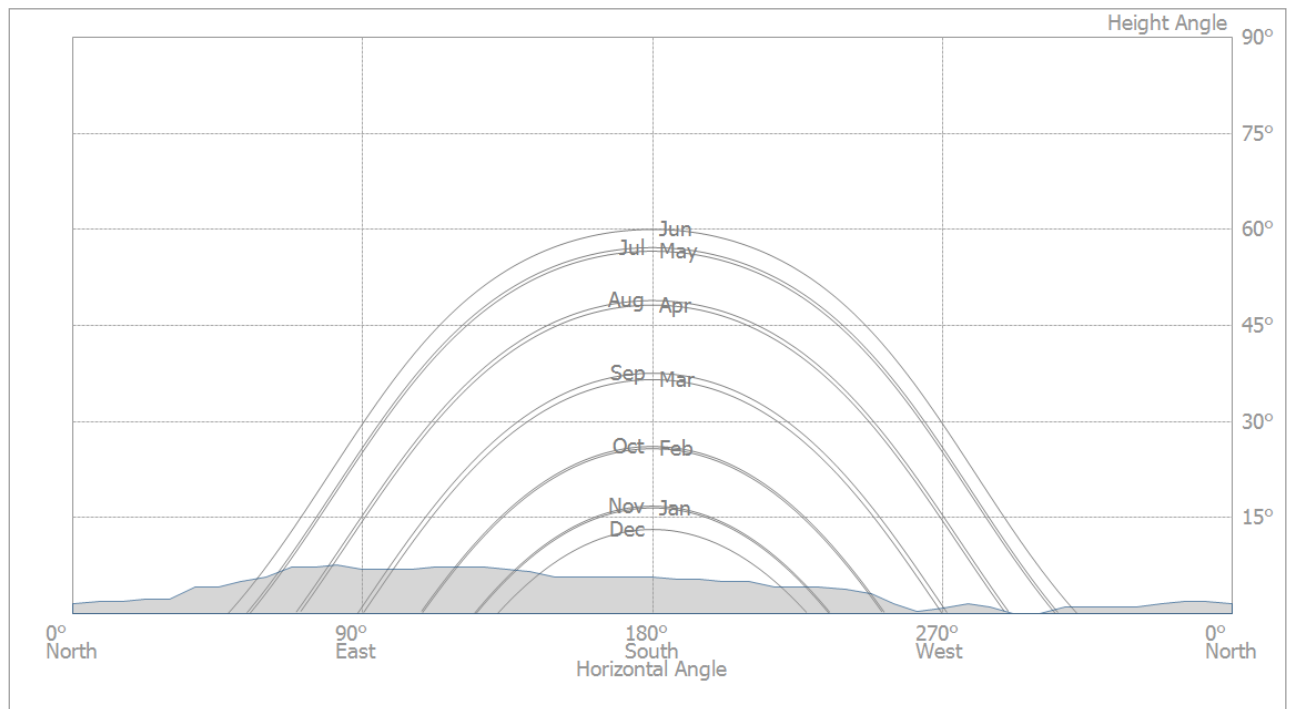


Figure: Horizon (3D Design)

Inverter configuration

Configuration 1

Module Areas	Building 01-Roof Area Southwest + Building 03-Roof Area Southwest
Inverter 1	
Model	MIN 2500TL-XE/X (v2)
Manufacturer	GROWATT New Energy Co., Ltd.
Quantity	1
Sizing Factor	81 %
Configuration	MPP 1: 1 x 4 + 1 x 1 MPP 2: not allocated

AC Mains

AC Mains

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

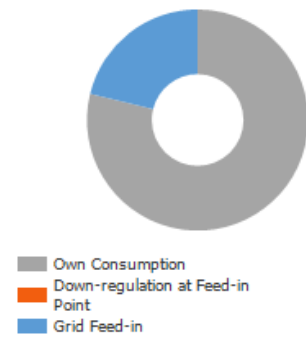
Simulation Results

Results Total System

PV System

PV Generator Output	2.03 kWp
Spec. Annual Yield	991.38 kWh/kWp
Performance Ratio (PR)	88.67 %
Yield Reduction due to Shading	4.4 %/Year
PV Generator Energy (AC grid)	2,011 kWh/Year
Own Consumption	1,585 kWh/Year
Down-regulation at Feed-in Point	0 kWh/Year
Grid Feed-in	426 kWh/Year
Own Power Consumption	78.8 %
CO ₂ Emissions avoided	944 kg / year

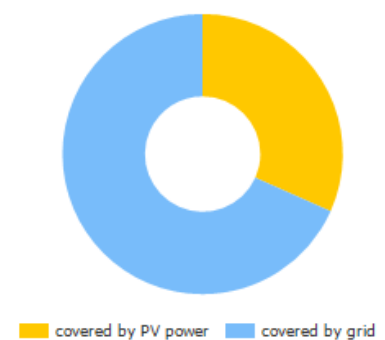
PV Generator Energy (AC grid)



Appliances

Appliances	5,000 kWh/Year
Standby Consumption (Inverter)	3 kWh/Year
Total Consumption	5,003 kWh/Year
covered by PV power	1,585 kWh/Year
covered by grid	3,418 kWh/Year
Solar Fraction	31.7 %

Total Consumption



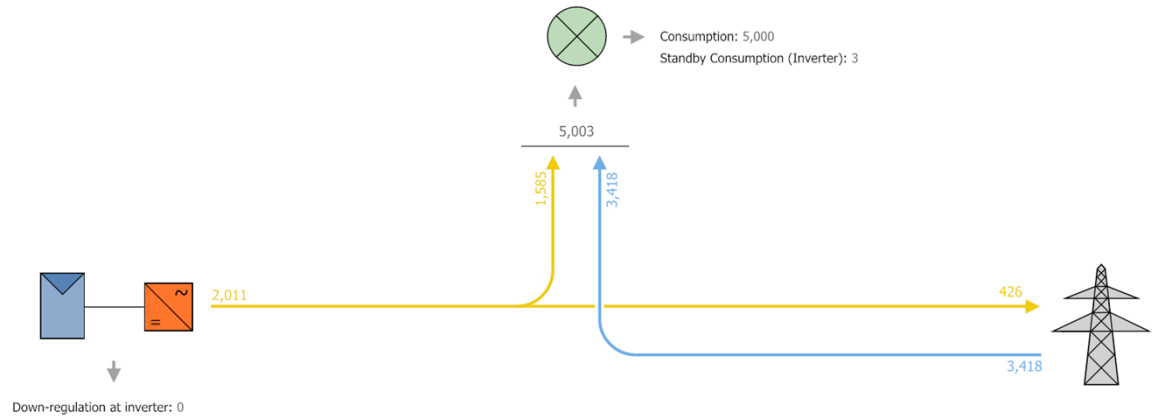
Level of Self-sufficiency

Total Consumption	5,003 kWh/Year
covered by grid	3,418 kWh/Year
Level of Self-sufficiency	31.7 %

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Energy Flow Graph

Project: 2 Coombes Lane Glossop Derbyshire SK13 5DG



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

Figure: Energy flow

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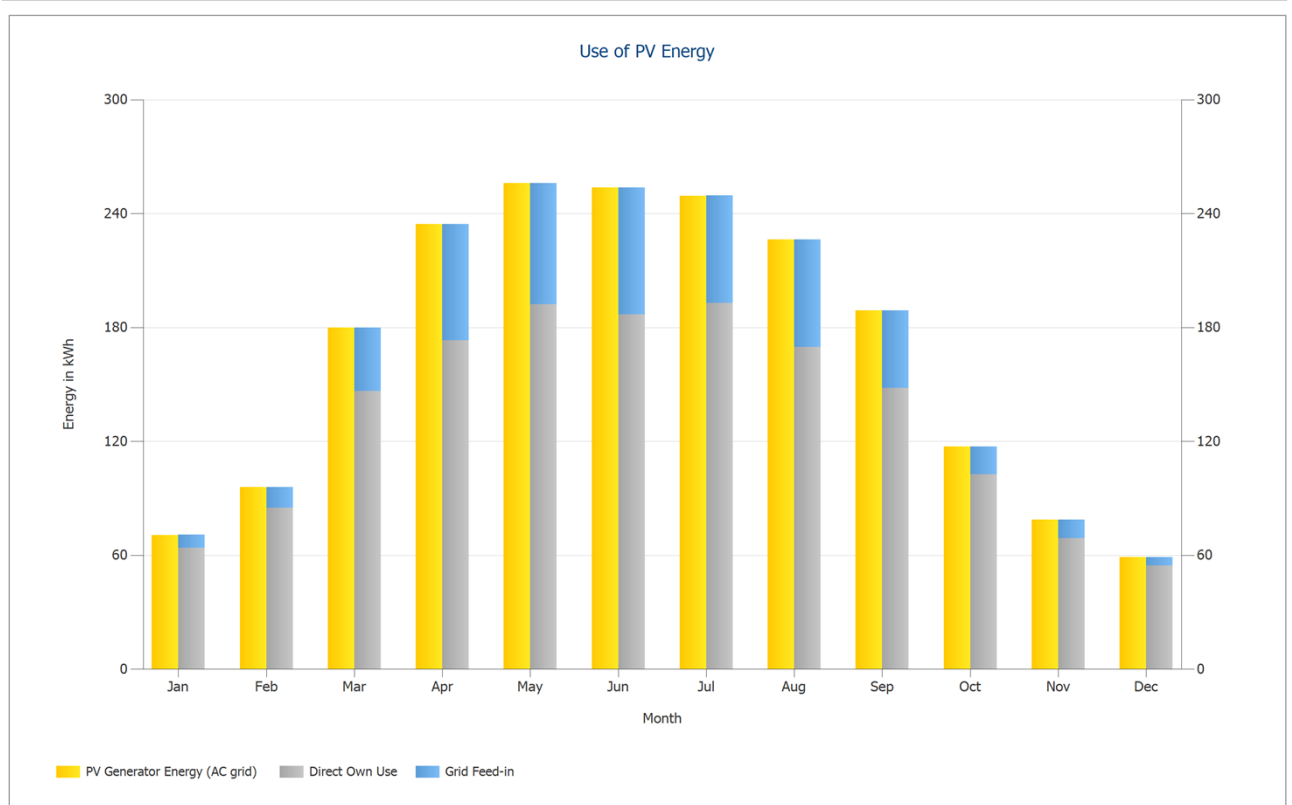


Figure: Use of PV Energy

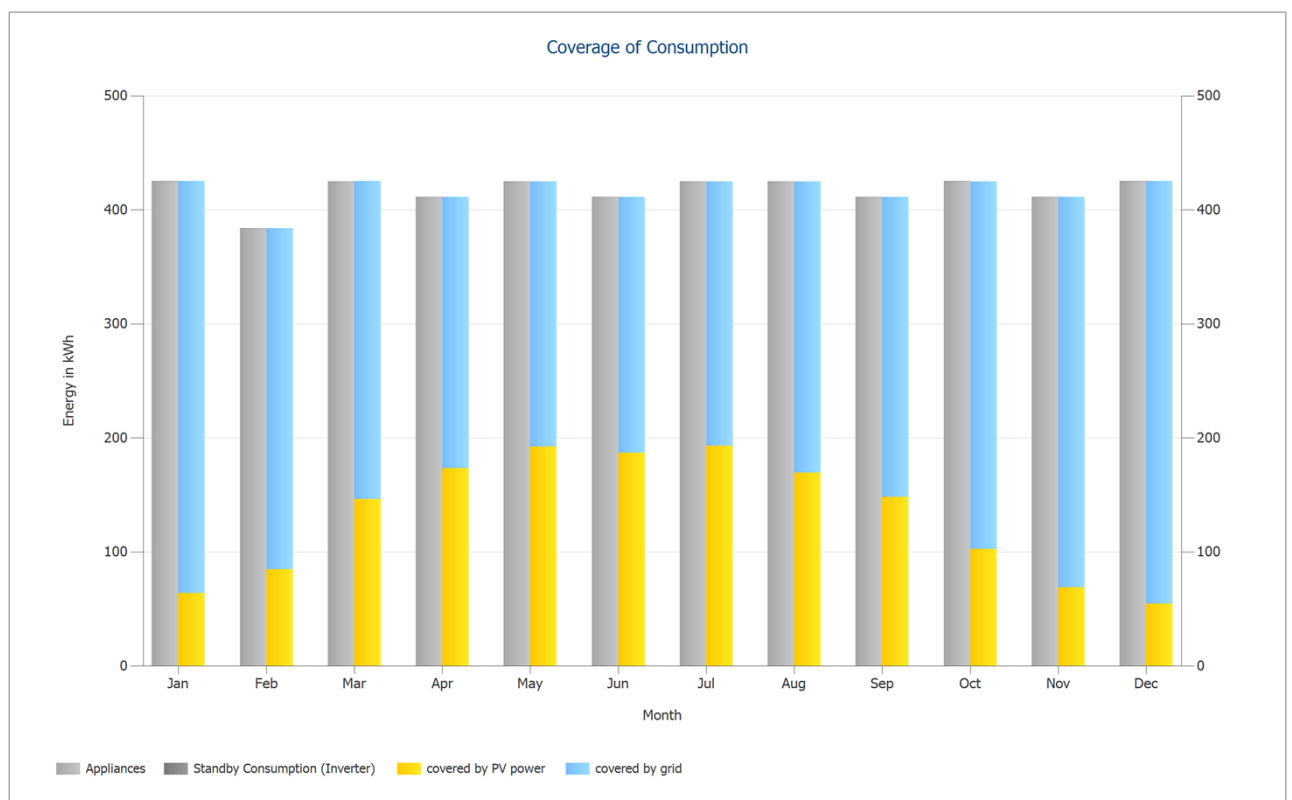


Figure: Coverage of Consumption

Financial Analysis

Overview

System Data

Grid Feed-in in the first year (incl. module degradation)	426 kWh/Year
PV Generator Output	2 kWp
Start of Operation of the System	01/01/2023
Assessment Period	20 Years
Interest on Capital	0 %

Economic Parameters

Internal Rate of Return (IRR)	268.38 %
Accrued Cash Flow (Cash Balance)	26,587.32 £
Amortization Period	0.0 Years
Electricity Production Costs	0 £/kWh

Payment Overview

Specific Investment Costs	0.00 £/kWp
Investment Costs	0.00 £
One-off Payments	0.00 £
Incoming Subsidies	0.00 £
Annual Costs	0.00 £/Year
Other Revenue or Savings	0.00 £/Year

Remuneration and Savings

Total Payment from Utility in First Year	64.71 £/Year
First year savings	442.87 £/Year

SEG - payment at 5p (Copy) - SEG eligible

Validity	01/01/2023 - 31/12/2042
Specific feed-in / export Remuneration	0.15 £/kWh
Feed-in / Export Tariff	64.709 £/Year
Inflation Rate for Feed-in / Export Tariff	3.00 %/Year

New Tariff (Example)

Energy Price	0.28 £/kWh
Inflation Rate for Energy Price	8.9 %/Year

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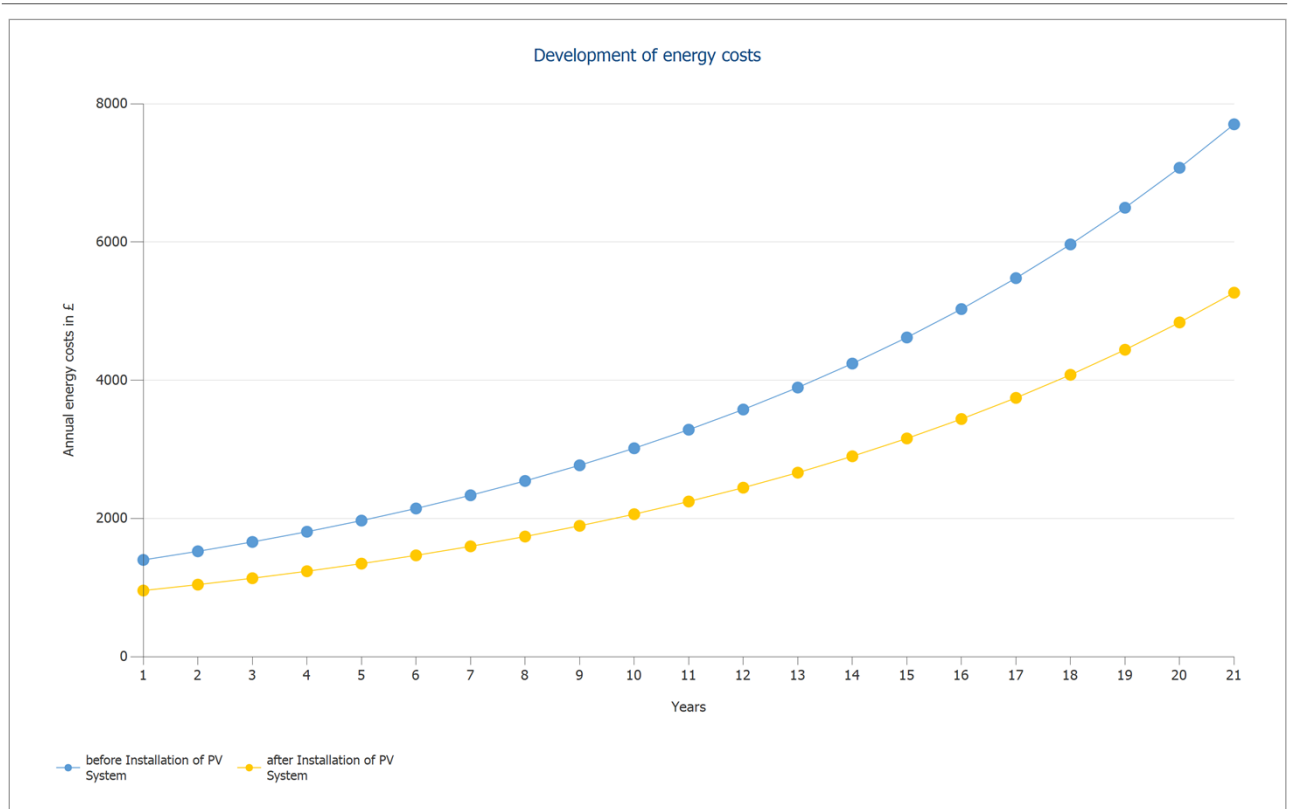


Figure: Development of energy costs

Cash flow

Cash flow

	Year 1	Year 2	Year 3	Year 4	Year 5
Feed-in / Export Tariff	£64.71	£66.68	£68.71	£70.79	£72.95
Electricity Savings	£442.87	£482.28	£525.20	£571.95	£622.85
Annual Cash Flow	£507.57	£548.96	£593.91	£642.74	£695.80
Accrued Cash Flow (Cash Balance)	£507.57	£1,056.53	£1,650.44	£2,293.18	£2,988.98

Cash flow

	Year 6	Year 7	Year 8	Year 9	Year 10
Feed-in / Export Tariff	£75.17	£77.45	£79.81	£82.24	£84.74
Electricity Savings	£678.28	£738.65	£804.39	£875.98	£953.94
Annual Cash Flow	£753.45	£816.10	£884.20	£958.22	£1,038.68
Accrued Cash Flow (Cash Balance)	£3,742.43	£4,558.53	£5,442.73	£6,400.95	£7,439.63

Cash flow

	Year 11	Year 12	Year 13	Year 14	Year 15
Feed-in / Export Tariff	£87.32	£89.97	£92.71	£95.53	£98.43
Electricity Savings	£1,038.84	£1,131.30	£1,231.99	£1,341.63	£1,461.04
Annual Cash Flow	£1,126.16	£1,221.27	£1,324.69	£1,437.16	£1,559.47
Accrued Cash Flow (Cash Balance)	£8,565.79	£9,787.06	£11,111.75	£12,548.91	£14,108.39

Cash flow

	Year 16	Year 17	Year 18	Year 19	Year 20
Feed-in / Export Tariff	£101.43	£104.51	£107.69	£110.97	£114.34
Electricity Savings	£1,591.07	£1,732.68	£1,886.88	£2,054.82	£2,237.70
Annual Cash Flow	£1,692.50	£1,837.19	£1,994.58	£2,165.78	£2,352.04
Accrued Cash Flow (Cash Balance)	£15,800.88	£17,638.07	£19,632.65	£21,798.43	£24,150.47

Cash flow

	Year 21
Feed-in / Export Tariff	£0.00
Electricity Savings	£2,436.85
Annual Cash Flow	£2,436.85
Accrued Cash Flow (Cash Balance)	£26,587.32

Degradation and inflation rates are applied on a monthly basis over the entire observation period. This is done in the first year.

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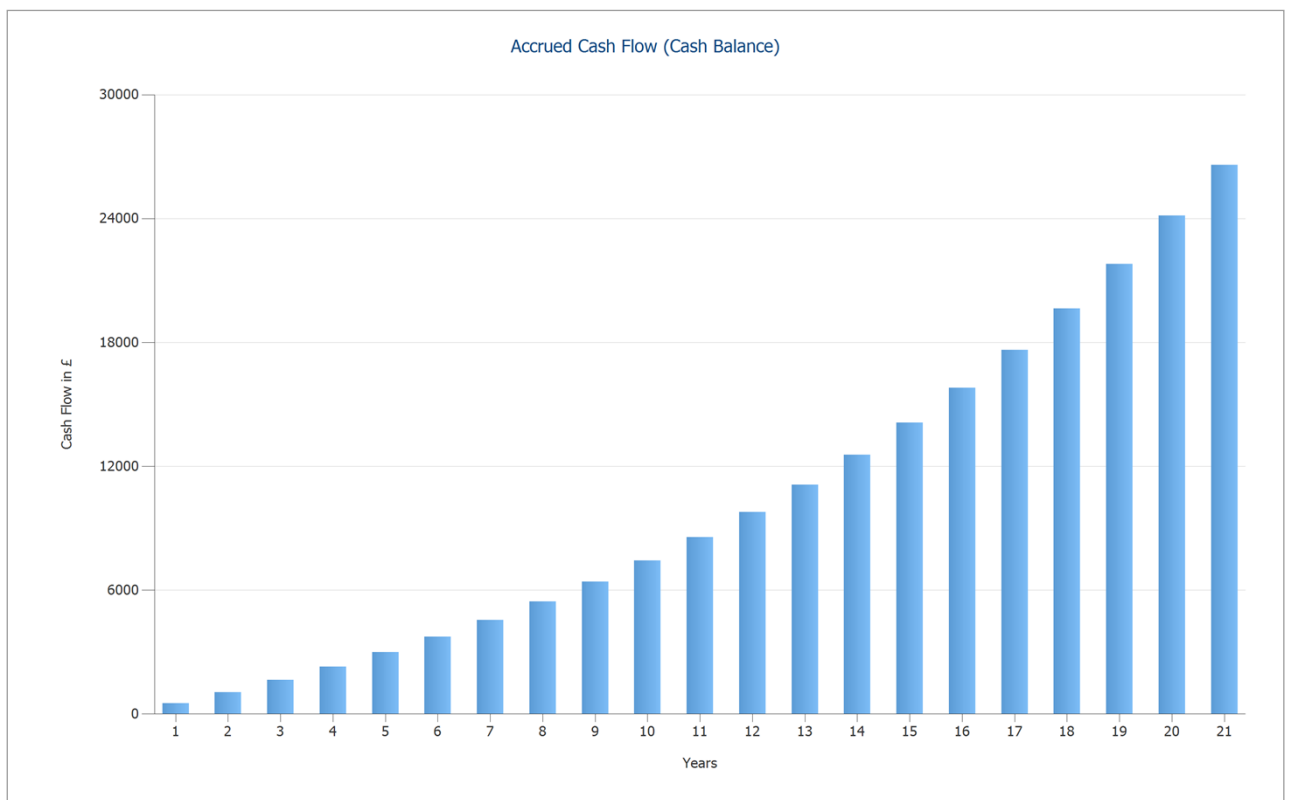


Figure: Accrued Cash Flow (Cash Balance)

Plans and parts list

Circuit Diagram

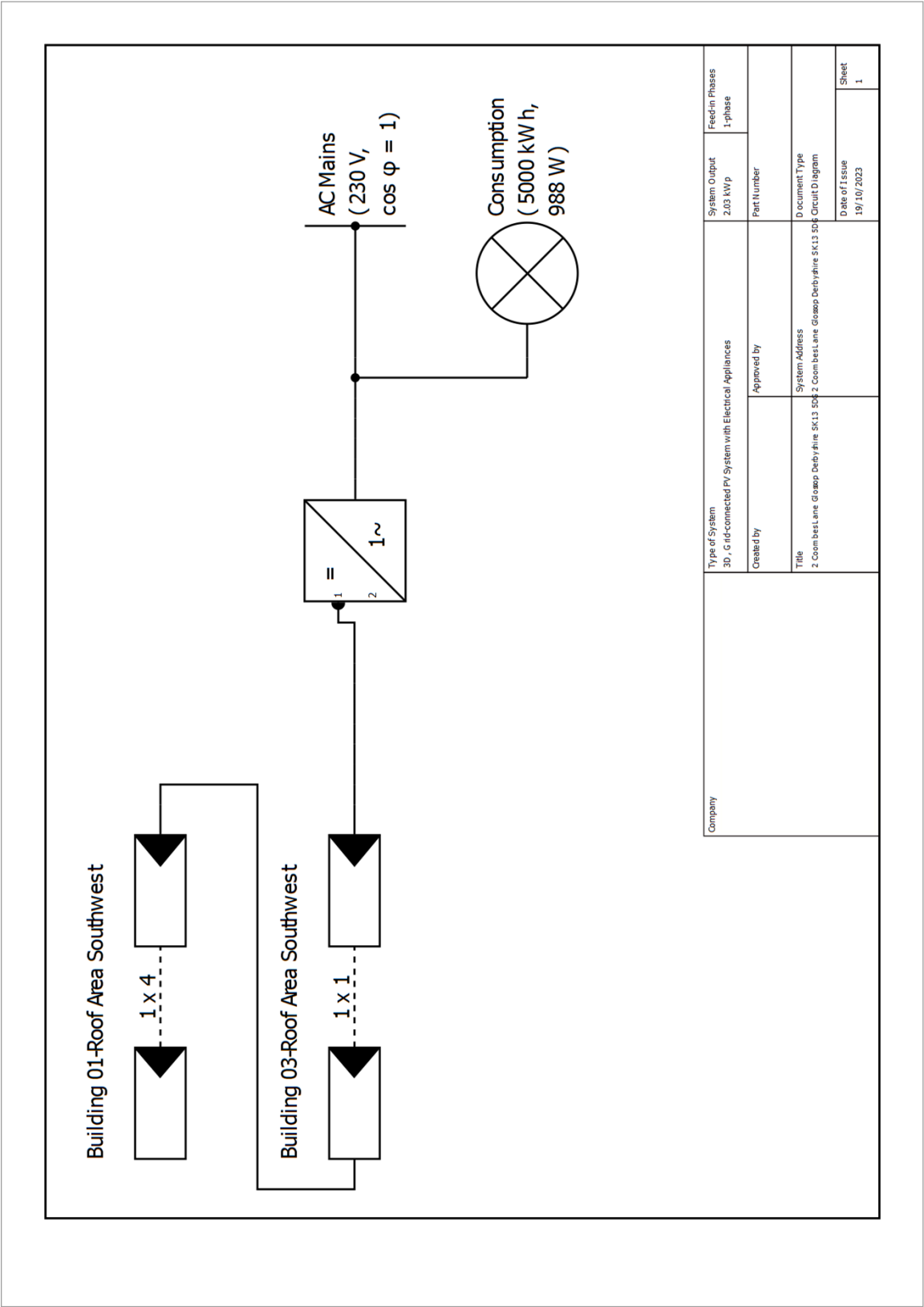


Figure: Circuit Diagram

Overview plan

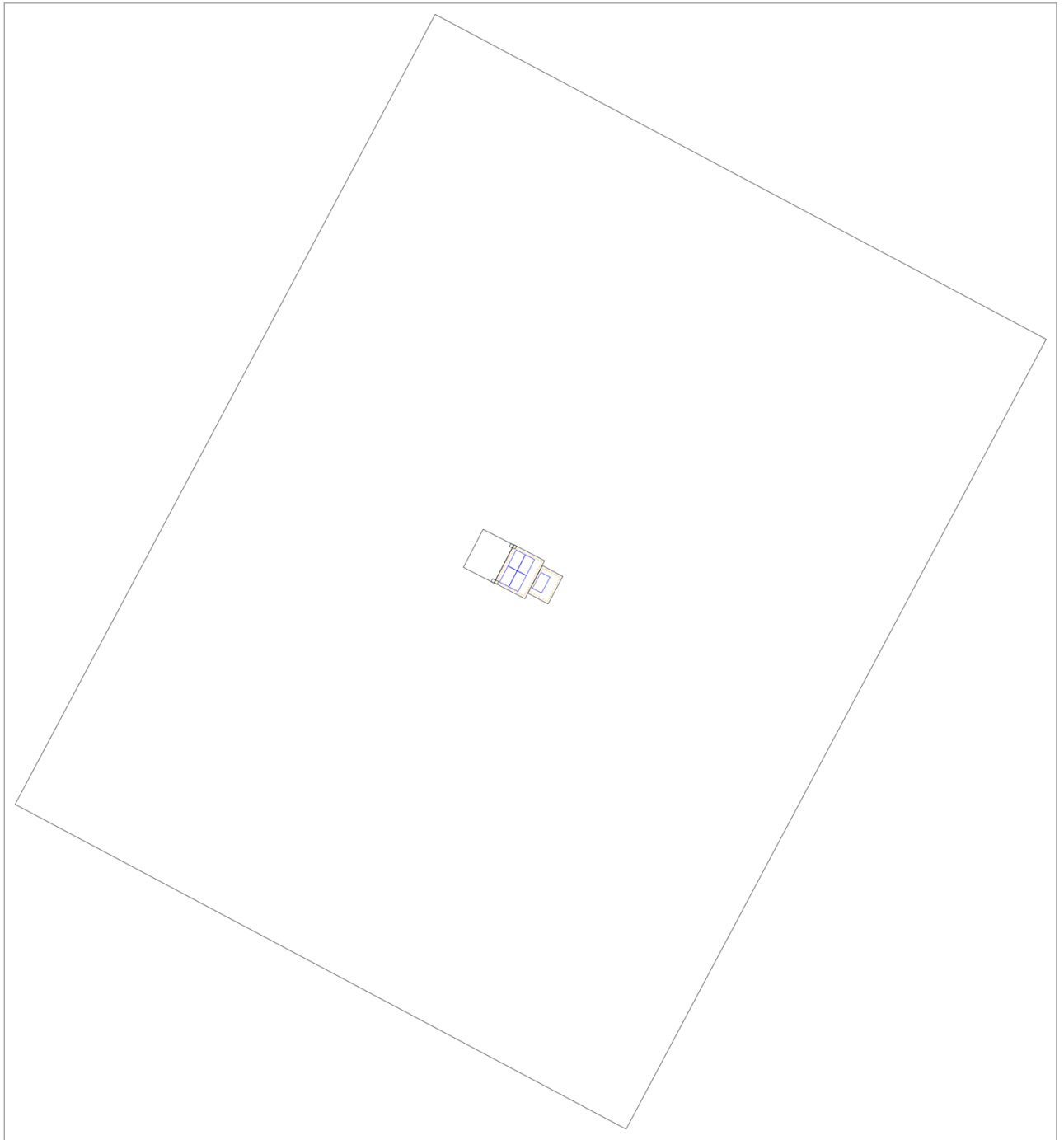


Figure: Overview plan

Dimensioning Plan

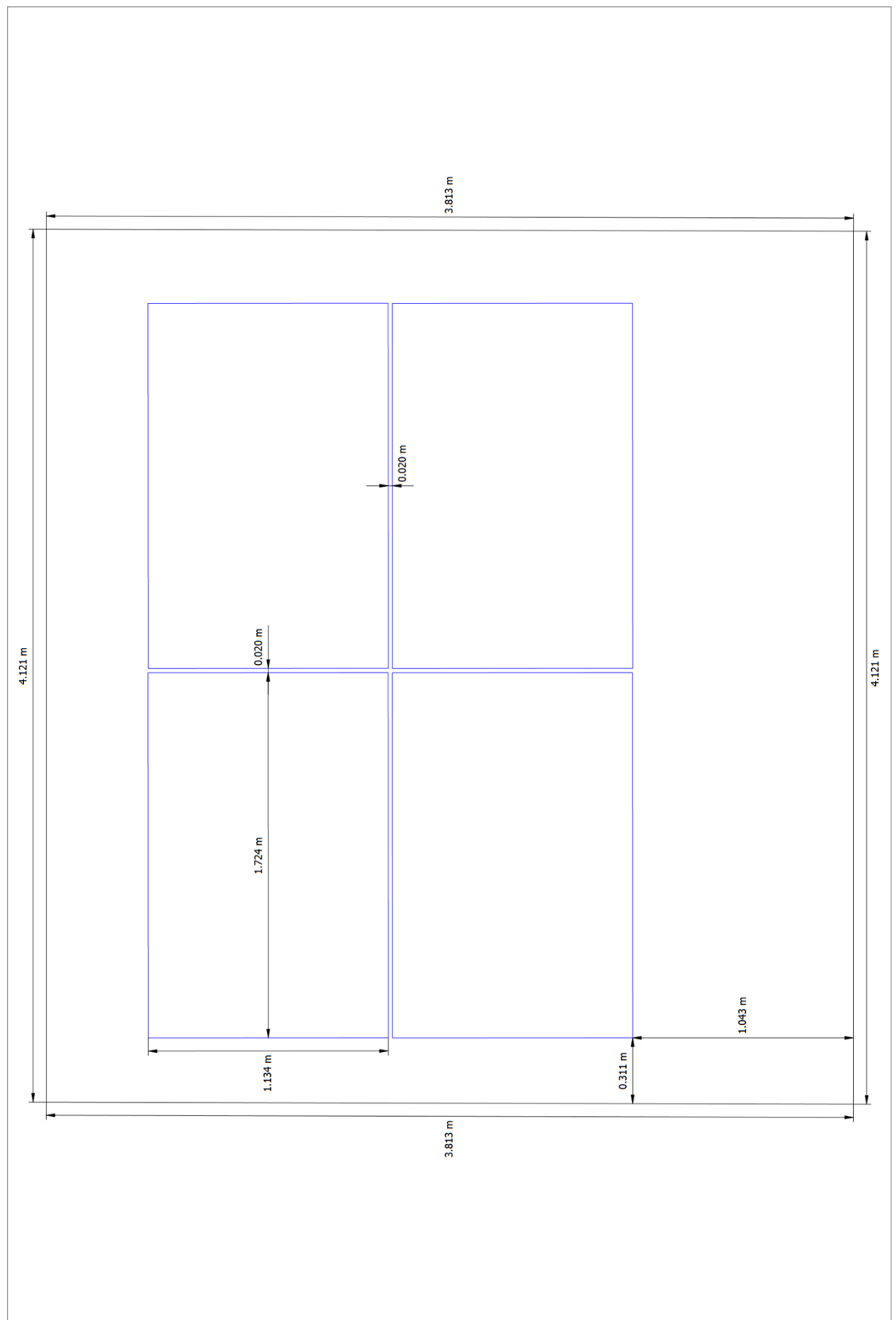


Figure: Building 01-Roof Area Southwest

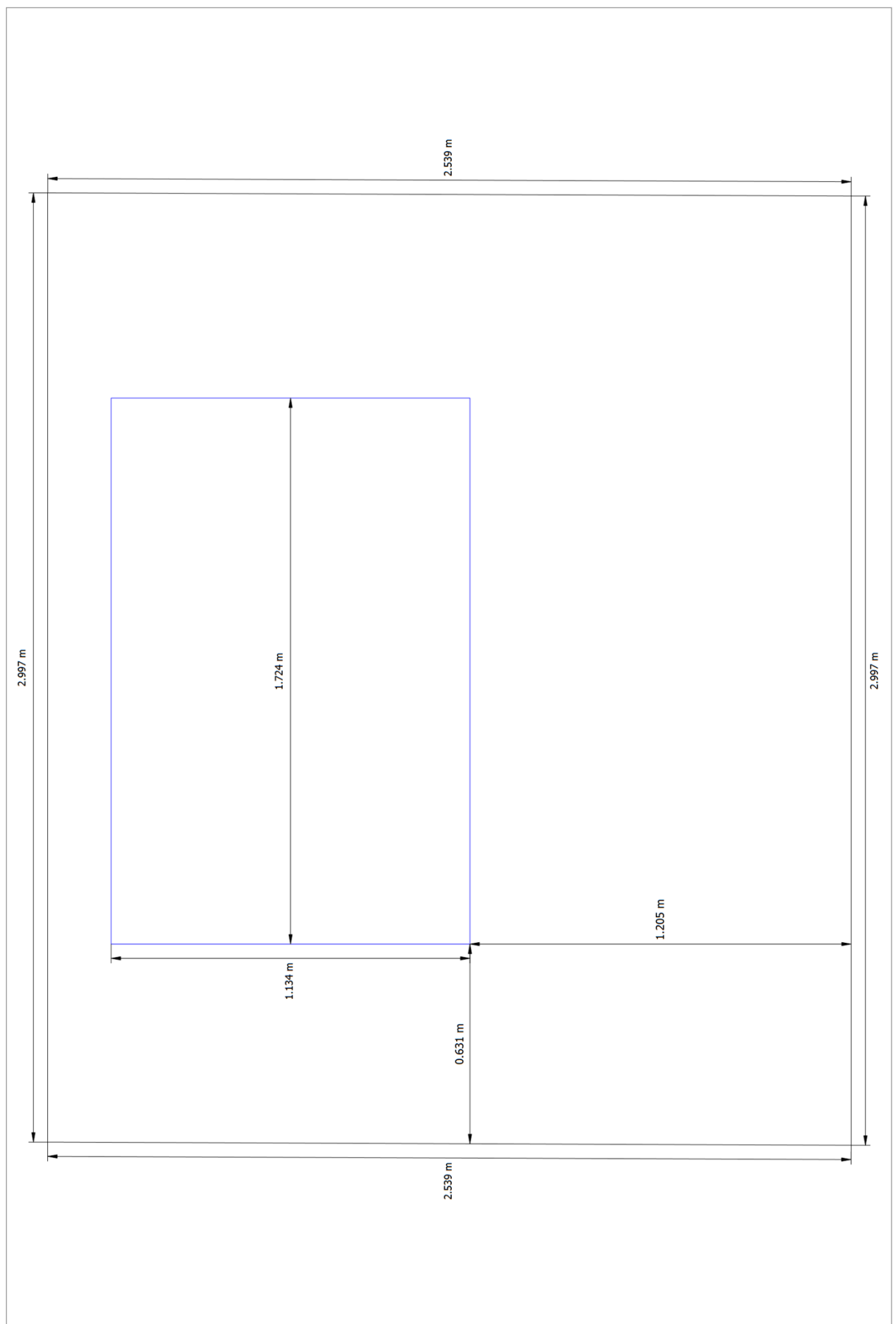


Figure: Building 03-Roof Area Southwest

String Plan

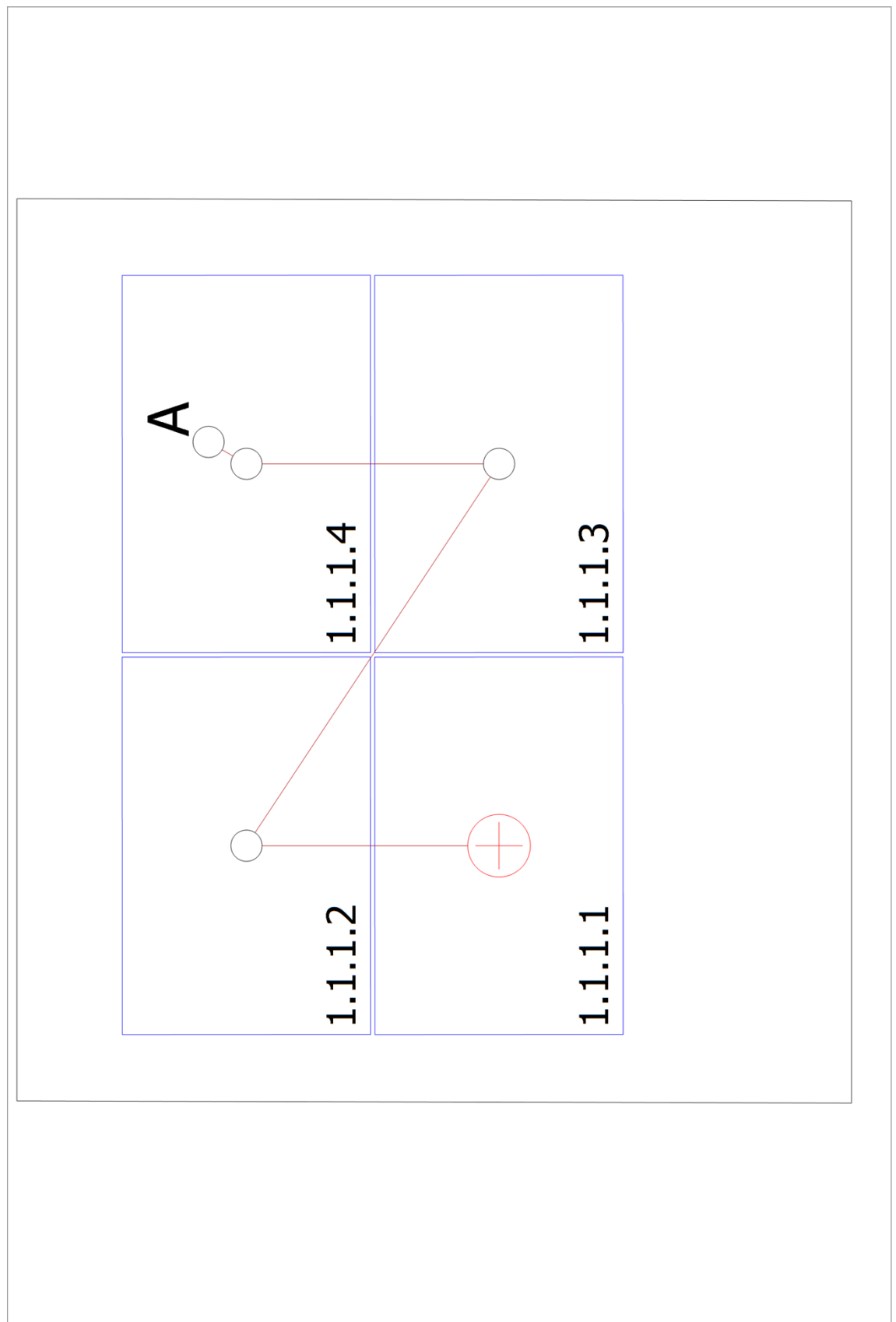


Figure: Building 01-Roof Area Southwest

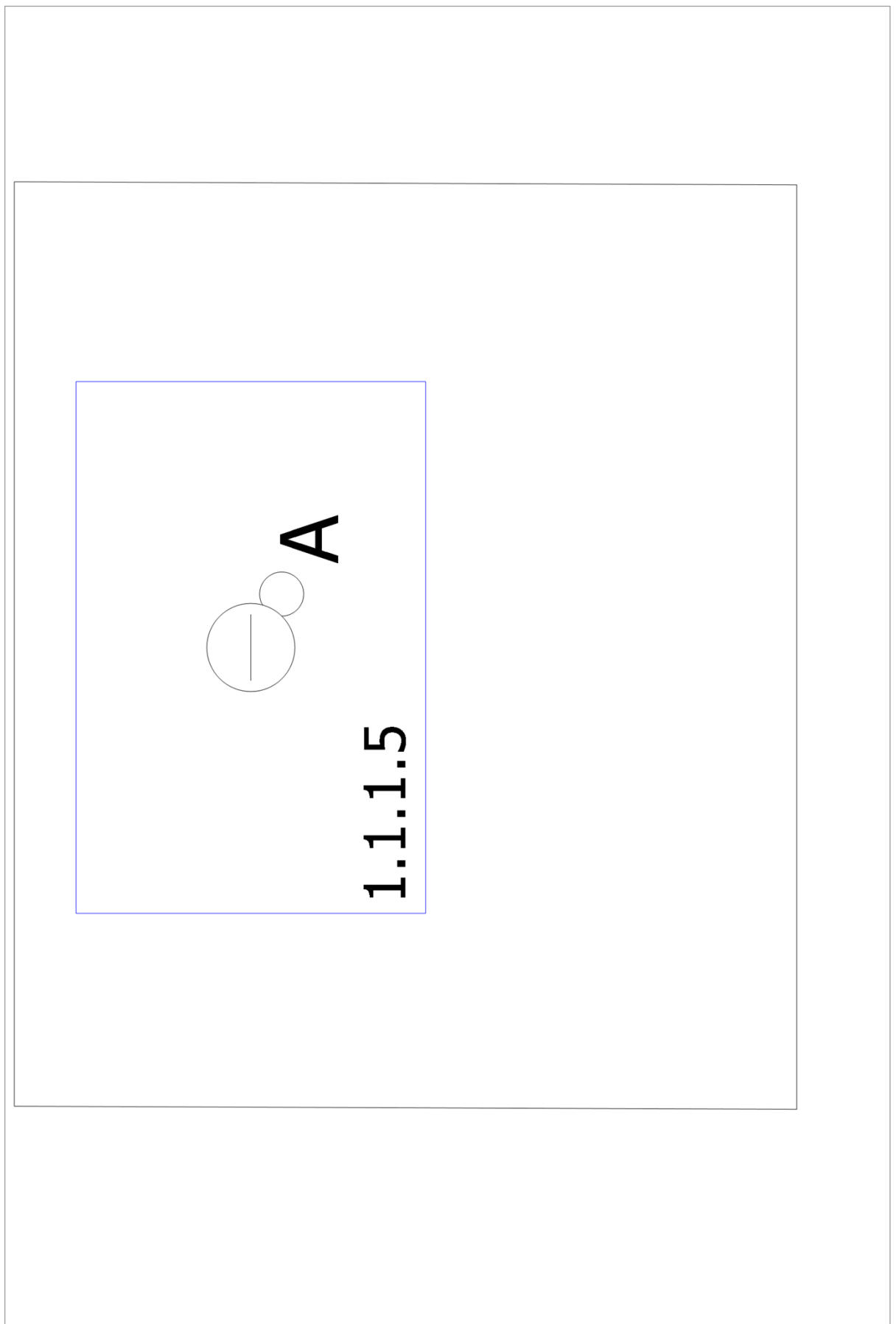


Figure: Building 03-Roof Area Southwest

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		Suntech Power	STP405S-C54/Umh	5	Piece
2	Inverter		GROWATT New Energy Co., Ltd.	MIN 2500TL-XE/X	1	Piece