

Project Name: Sport Ireland - Sport HQ - Final
Offer no.: Sport HQ

07/05/2026

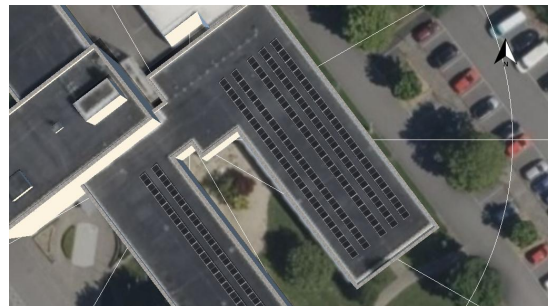
Documentation- Sport HQ

Customer Details

Company	
Customer Number	
Contact person	
Address	D15 DY62
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E-Mail	

Project Data

Project Name	Sport Ireland - Sport HQ - Final
Offer no.	Sport HQ
Project Designer	
Address	D15 DY62



Project Overview



Figure: Overview Image, 3D Design

PV System

3D, Grid-connected PV System with Electrical Appliances

Climate Data	Dublin Airport, IRL (2001 - 2020)
Values source	Meteonorm 9.0
PV Generator Output	56.32 kWp
PV Generator Surface	255.8 m ²
Number of PV Modules	128
Number of Inverters	1

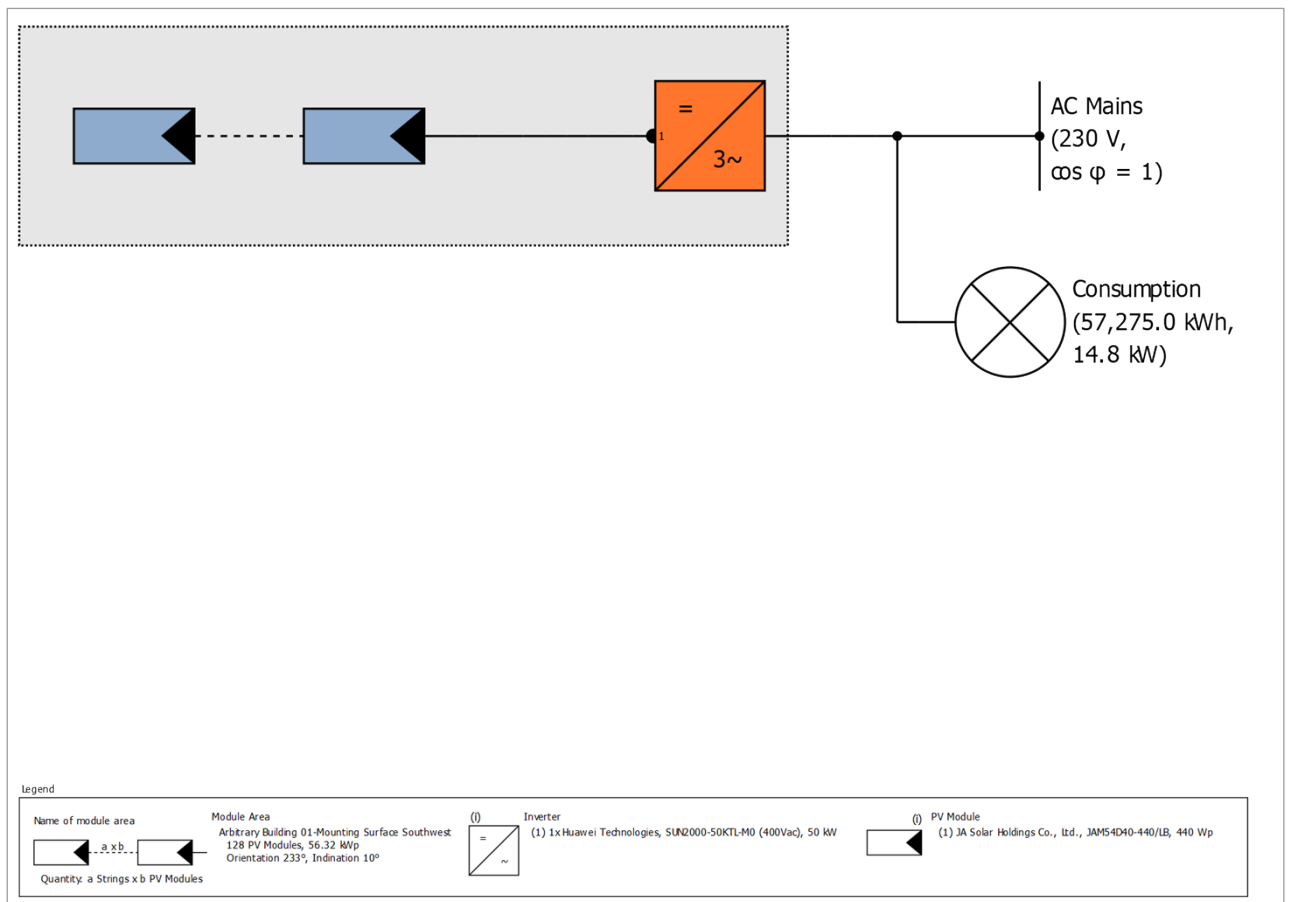


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	56.32 kWp
Spec. Annual Yield	961.56 kWh/kWp
Performance Ratio (PR)	92.12 %
Yield Reduction due to Shading	2.6 %
PV Generator Energy (AC grid)	54,176 kWh/Year
Own Consumption	24,053 kWh/Year
Grid Export	30,123 kWh/Year
Own Power Consumption	44.4 %
CO ₂ Emissions avoided	12,239 kg / year
Level of Self-sufficiency	42.0 %

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.

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Set-up of the System

Overview

System Data

Type of System	3D, Grid-connected PV System with Electrical Appliances
Start of Operation	01/05/2026

Climate Data

Location	Dublin Airport, IRL (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	57275 kWh
Sport HQ	57275 kWh
Load Peak	14.8 kW

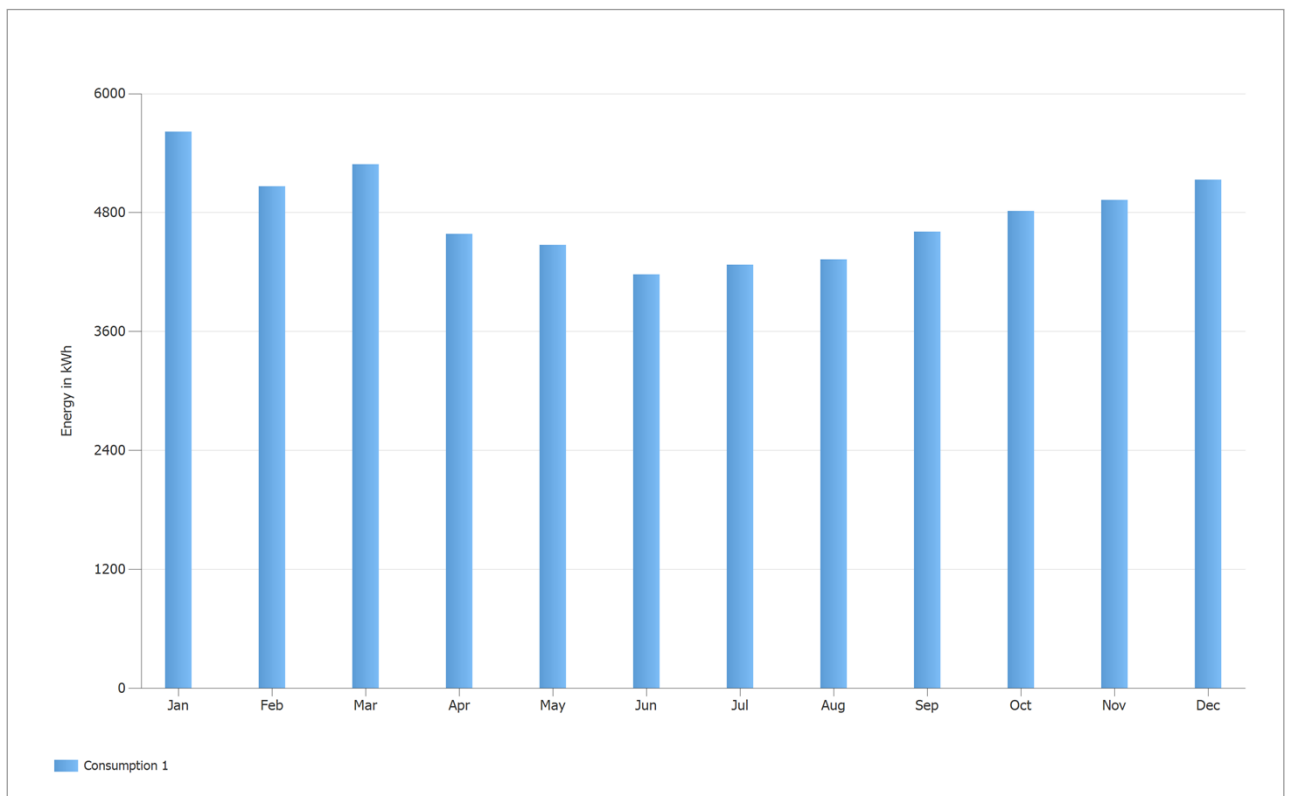


Figure: Consumption

Module Areas

1. Module Area - Arbitrary Building 01-Mounting Surface Southwest

PV Generator, 1. Module Area - Arbitrary Building 01-Mounting Surface Southwest

Name	Arbitrary Building 01-Mounting Surface Southwest
PV Modules	128 x JAM54D40-440/LB (v4)
Manufacturer	JA Solar Holdings Co., Ltd.
Inclination	10 °
Orientation	Southwest 233 °
Installation Type	Mounted - Roof
PV Generator Surface	255.8 m²



Figure: 1. Module Area - Arbitrary Building 01-Mounting Surface Southwest

Inverter configuration

Configuration 1

Module Area	Arbitrary Building 01-Mounting Surface Southwest
Inverter 1	
Model	SUN2000-50KTL-M0 (400Vac) (v2)
Manufacturer	Huawei Technologies
Quantity	1
Sizing Factor	112.6 %
Configuration	MPP 1: 1 x 23
	MPP 2: 1 x 21
	MPP 3: 1 x 21
	MPP 4: 1 x 21
	MPP 5: 1 x 21
	MPP 6: 1 x 21

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AC Mains

AC Mains

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

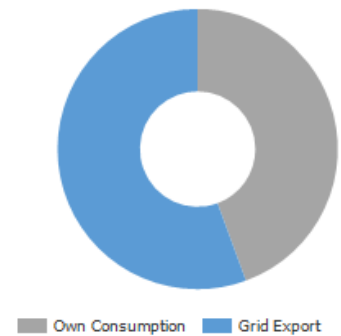
Simulation Results

Results Total System

PV System

PV Generator Output	56.32 kWp
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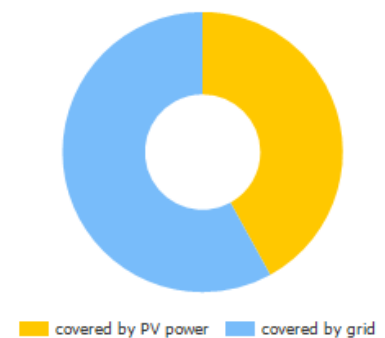
PV Generator Energy (AC grid)



Appliances

Appliances	57,275 kWh/Year
Standby Consumption (Inverter)	21 kWh/Year
Total Consumption	57,296 kWh/Year
covered by PV power	24,053 kWh/Year
covered by grid	33,243 kWh/Year
Solar Fraction	42.0 %

Total Consumption



Level of Self-sufficiency

Total Consumption	57,296 kWh/Year
covered by grid	33,243 kWh/Year
Level of Self-sufficiency	42.0 %

Results per Module Area

Arbitrary Building 01-Mounting Surface Southwest

PV Generator Output	56.32 kWp
PV Generator Surface	255.76 m ²
Global Radiation at the Module	1043.85 kWh/m ²
Global Radiation on Module without reflection	1043.85 kWh/m ²
Performance Ratio (PR)	92.15 %
PV Generator Energy (AC grid)	54176.00 kWh/Year
Spec. Annual Yield	961.93 kWh/kWp

PV System Energy Balance

PV System Energy Balance

Global radiation - horizontal	983.40 kWh/m²	
Deviation from standard spectrum	-9.83 kWh/m ²	-1.00 %
Ground Reflection (Albedo)	1.48 kWh/m ²	0.15 %
Orientation and inclination of the module surface	43.45 kWh/m ²	4.46 %
Module-independent shading	-4.26 kWh/m ²	-0.42 %
Reflection on the Module Surface	0.00 kWh/m ²	0.00 %
Irradiance on the rear side of the module	29.62 kWh/m ²	2.92 %
Global Radiation at the Module	1,043.85 kWh/m²	
	1,043.85 kWh/m ²	
	x 255.758 m ²	
	= 266,973.72 kWh	
Global PV Radiation	266,973.72 kWh	
Bifaciality (80 % of back irradiance)	-1,514.71 kWh	-0.57 %
Soiling	0.00 kWh	0.00 %
STC Conversion (Rated Efficiency of Module 22.02 %)	-207,006.91 kWh	-77.98 %
Rated PV Energy	58,452.10 kWh	
Module-specific Partial Shading	-1,008.41 kWh	-1.73 %
Low-light performance	-595.62 kWh	-1.04 %
Deviation from the nominal module temperature	-138.33 kWh	-0.24 %
Diodes	-49.11 kWh	-0.09 %
Mismatch (Manufacturer Information)	-1,133.21 kWh	-2.00 %
Mismatch (Configuration/Shading)	-174.22 kWh	-0.31 %
PV Energy (DC) without inverter clipping	55,353.19 kWh	
Failing to reach the DC start output	-5.37 kWh	-0.01 %
Clipping on account of the MPP Voltage Range	-8.47 kWh	-0.02 %
Clipping on account of the max. DC Current	0.00 kWh	0.00 %
Clipping on account of the max. DC Power	0.00 kWh	0.00 %
Clipping on account of the max. AC Power/cos phi	-11.81 kWh	-0.02 %
MPP Matching	-78.04 kWh	-0.14 %
PV energy (DC)	55,249.49 kWh	
Energy at the Inverter Input	55,249.49 kWh	
Input voltage deviates from rated voltage	-77.23 kWh	-0.14 %
DC/AC Conversion	-996.27 kWh	-1.81 %
Standby Consumption (Inverter)	-20.92 kWh	-0.04 %
Total Cable Losses	0.00 kWh	0.00 %
PV energy (AC) minus standby use	54,155.08 kWh	
PV Generator Energy (AC grid)	54,176.00 kWh	

Data Sheets

PV Module Data Sheet

PV Module: JAM54D40-440/LB (v4)

Manufacturer	JA Solar Holdings Co., Ltd.
Available	Yes

Electrical Data

Cell Type	Si monocrystalline
Half-cell module	Yes
Cell Count	108
Number of Bypass Diodes	3
Loss voltage per bypass diode	1 V
Integrated power optimizer	No
Only Transformer Inverters suitable	No

I/V Characteristics at STC

MPP Voltage	32.47 V
MPP Current	13.55 A
Open Circuit Voltage	38.9 V
Short-Circuit Current	14.31 A
Increase open circuit voltage before stabilisation	0 %
Nominal output	440 W
Fill Factor	79.04 %
Efficiency	22.02 %

I/V Part Load Characteristics

Values source	Manufacturer/user-created
Irradiance	200 W/m ²
Voltage in MPP at Part Load	31.723 V
Current in MPP at Part Load	2.71 A
Open Circuit Voltage (Part Load)	36.662 V
Short Circuit Current at Part Load	2.818 A

Additional Parameters

Temperature Coefficient of Voc	-113.1 mV/K
Temperature Coefficient of Isc	6.6 mA/K
Temperature Coefficient of Pmpp	-0.29 %/K
Incident Angle Modifier (IAM)	100 %
Bifacial factor	80 %
Maximum System Voltage	1500 V

Mechanical Data

Width	1134 mm
Height	1762 mm
Depth	30 mm
Frame Width	28 mm
Weight	22 kg

Inverter Data Sheet

Inverter: SUN2000-50KTL-M0 (400Vac) (v2)

Manufacturer	Huawei Technologies
Available	Yes
Electrical data - DC	
DC nominal output	50.74 kW
Max. DC Power	56.2 kW
Nom. DC Voltage	600 V
Max. Input Voltage	1100 V
Max. Input Current	132 A
Max. short circuit current	132 A
Number of DC Inlets	12
Electrical data - AC	
AC Power Rating	50 kW
Max. AC Power	55 kVA
Nom. AC Voltage	230 V
Number of Phases	3
With Transformer	No
Electrical data - other	
Change in Efficiency when Input Voltage deviates from Rated Voltage	0.12 %/100V
Min. Feed-in Power	80 W
Standby Consumption	15 W
Night Consumption	2 W
MPP Tracker	
Output Range < 20% of Power Rating	99 %
Output Range > 20% of Power Rating	99.99 %
Count of MPP Trackers	6
MPP Tracker 1-6	
Max. Input Current	22 A
Max. short circuit current	22 A
Max. Input Power	17.6 kW
Min. MPP Voltage	200 V
Max. MPP Voltage	1000 V

Plans and parts list

Circuit Diagram

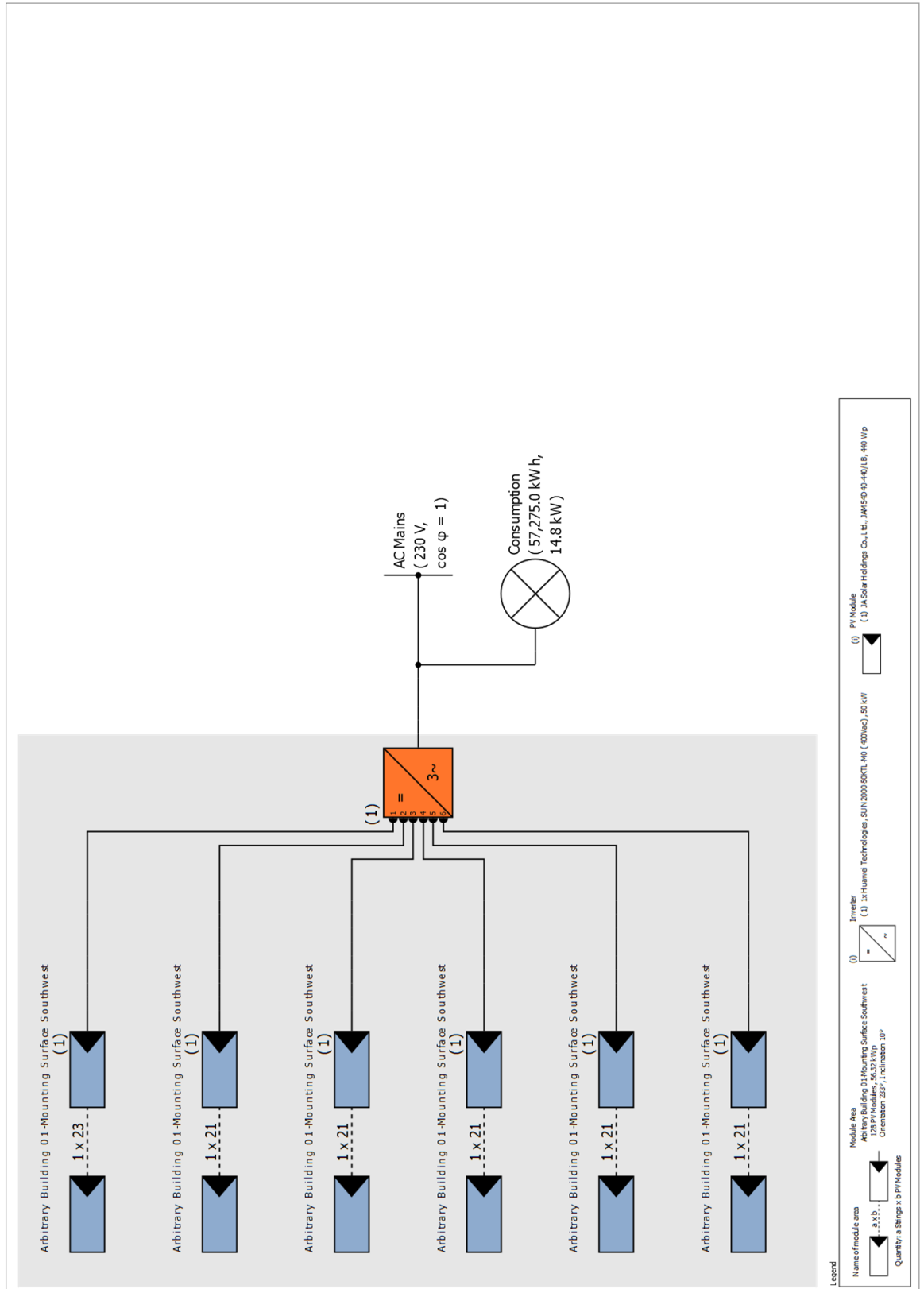


Figure: Circuit Diagram

Overview plan

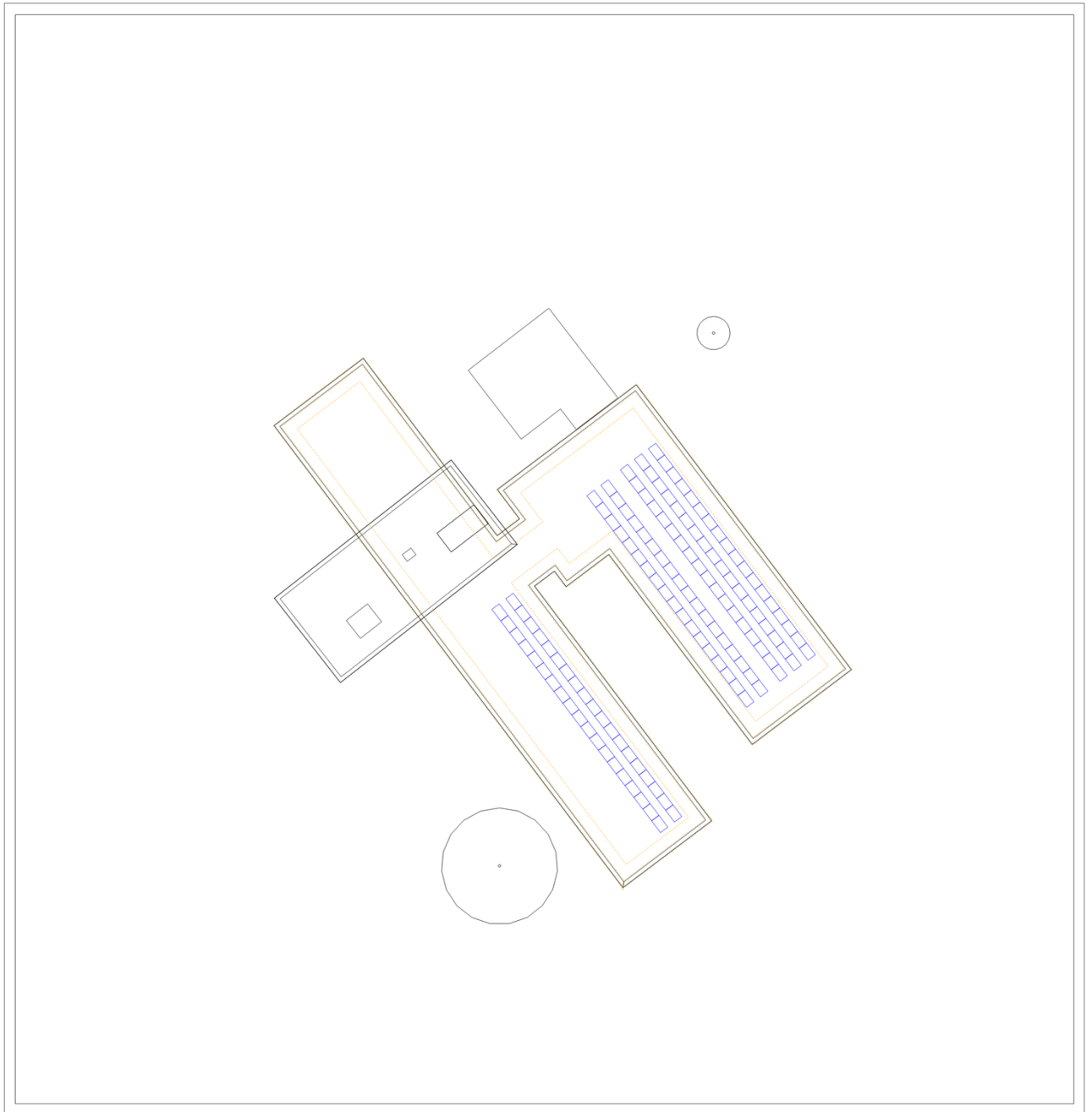


Figure: Overview plan

Dimensioning Plan

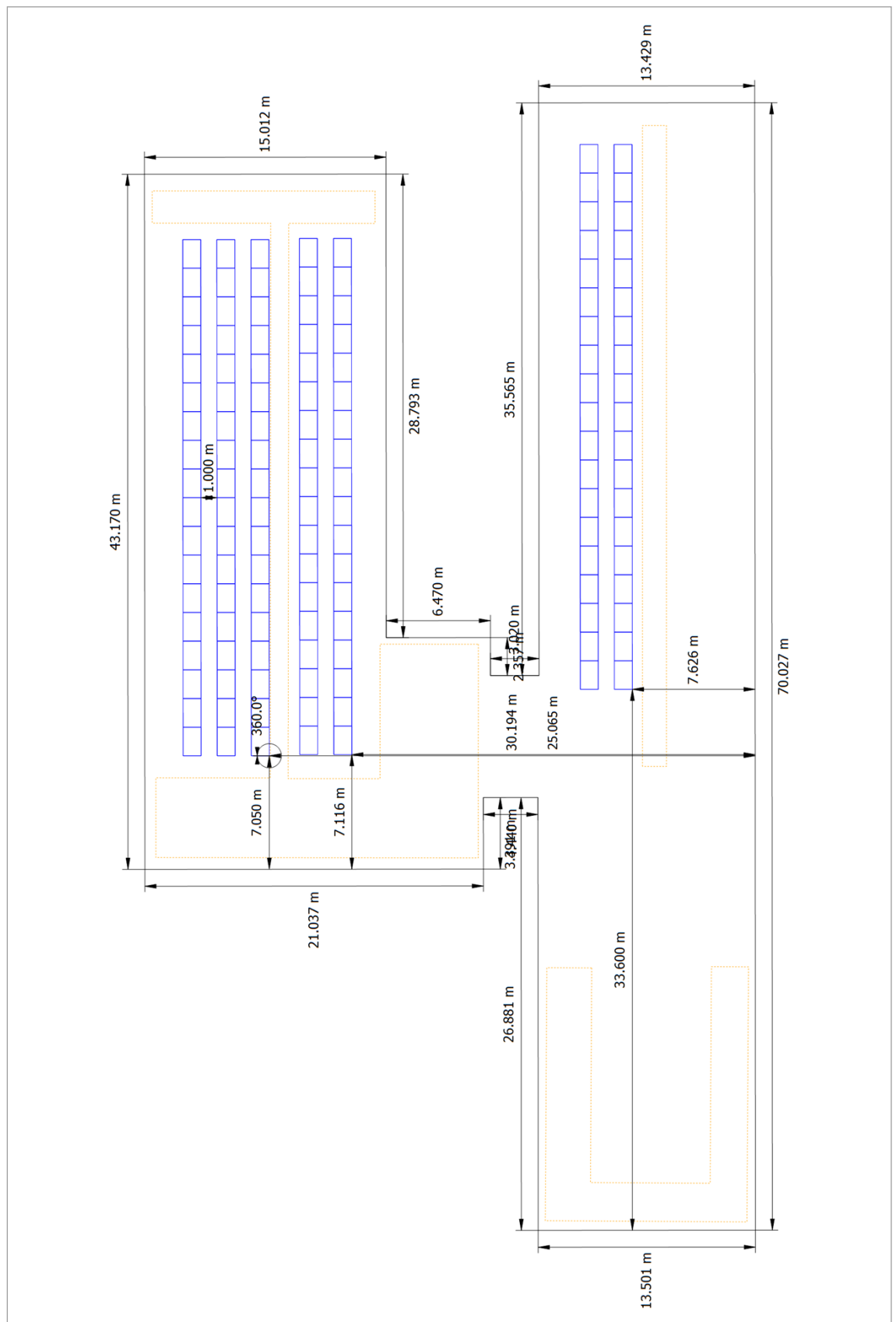


Figure: Arbitrary Building 01 - Mounting Surface Southwest

String Plan

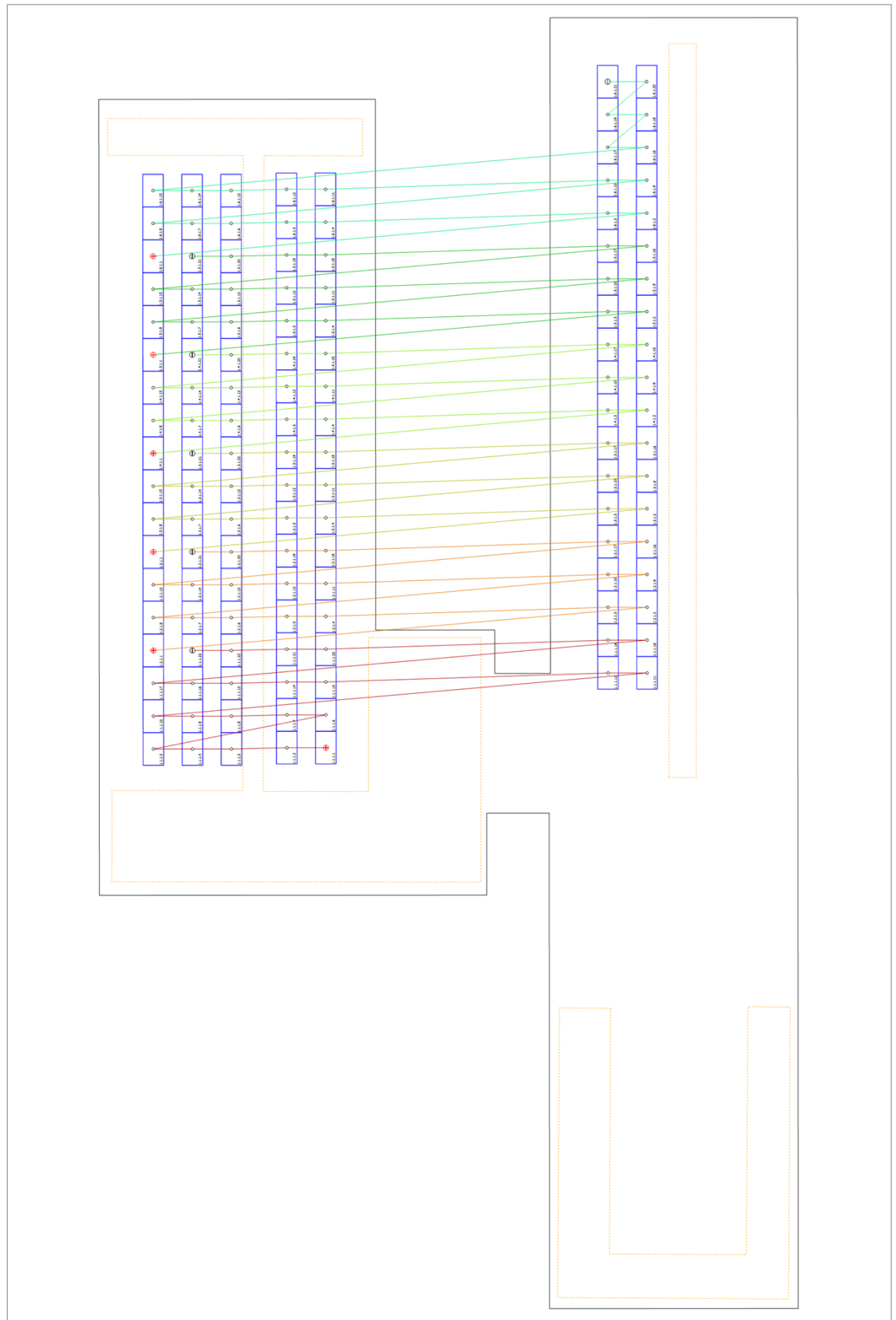


Figure: Arbitrary Building 01 - Mounting Surface Southwest

Offer Number: Sport HQ

Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		JA Solar Holdings Co., Ltd.	JAM54D40-440/LB	128	Piece
2	Inverter		Huawei Technologies	SUN2000-50KTL-M0 (400Vac)	1	Piece
3	Components			Circuit Breaker AC Isolator	1	Piece
4	Components			Energy Flow Sensor	1	Piece
5	Components			Bidirectional Meter	1	Piece
6	Components			Network and System Protection - Fireman Shunt	6	Piece
7	Components			Circuit Breaker DC Isolator	6	Piece