Lovatts Roofing
R. L. Lovatt, Manor St, Bury BL9 7BL

Devonshire St N, Ardwick, Manchester M12
4BB

Project Name: DEVONSHIRE STREET

23/06/2025

Your PV system from Lovatts Roofing

Address of Installation

Devonshire St N, Ardwick, Manchester M12 4BB



Project Overview



Figure: Overview Image, 3D Design

PV System

3D, Grid-connected PV System

Climate Data	Manchester, GBR (2001 - 2020)	
Values source	Meteonorm 8.2(i)	
PV Generator Output	29.96	kWp
PV Generator Surface	133.0	m²
Number of PV Modules	56	
Number of Inverters	2	

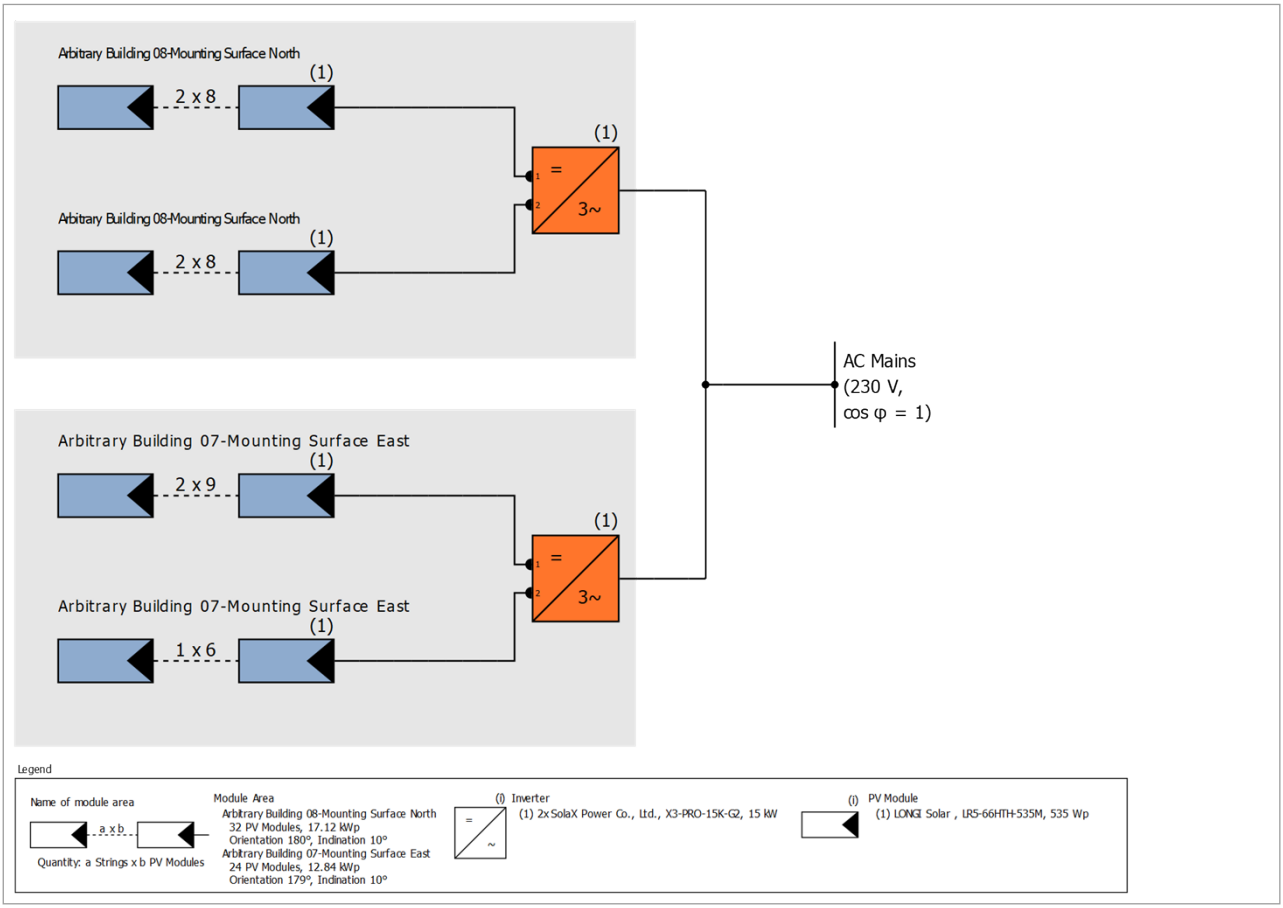


Figure: Schematic diagram

Production Forecast

Production Forecast

PV Generator Output	29.96	kWp
Spec. Annual Yield	832.37	kWh/kWp
Performance Ratio (PR)	79.59	%
Yield Reduction due to Shading	5.8	%
Grid Export	24,960	kWh/Year
Grid Export in the first year (incl. module degradation)	24,960	kWh/Year
Standby Consumption (Inverter)	22	kWh/Year
CO_2 Emissions avoided	5,162	kg / year

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

Climate Data

Location	Manchester, GBR (2001 - 2020)
Values source	Meteonorm 8.2(i)
Data resolution	1 h
Simulation models used:	
- Diffuse Irradiation onto Horizontal Plane	Hofmann
- Irradiance onto tilted surface	Hay & Davies

Module Areas

1. Module Area - Arbitrary Building 08-Mounting Surface North

PV Generator, 1. Module Area - Arbitrary Building 08-Mounting Surface North

Name	Arbitrary Building 08-Mounting Surface North
PV Modules	32 x LR5-66HTH-535M (v1)
Manufacturer	LONGI Solar
Inclination	10 °
Orientation	South 180 °
Installation Type	Mounted - Roof
PV Generator Surface	76.0 m²

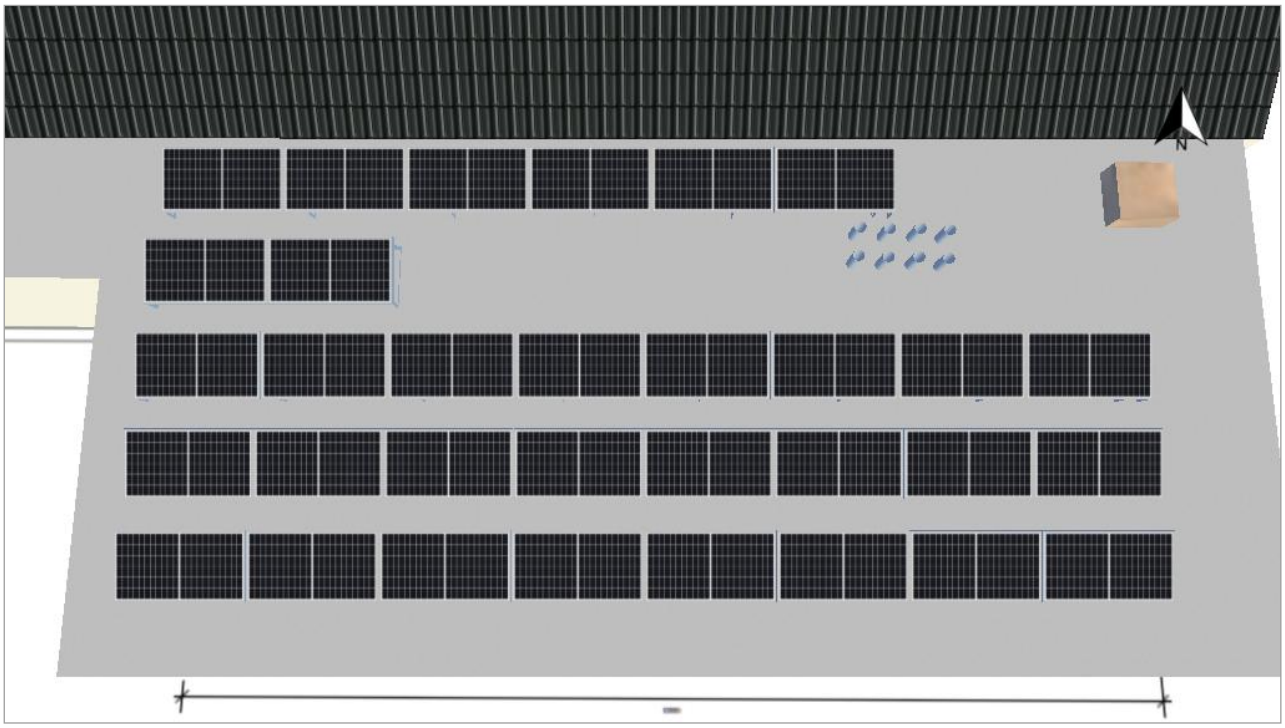


Figure: 1. Module Area - Arbitrary Building 08-Mounting Surface North

2. Module Area - Arbitrary Building 07-Mounting Surface East

PV Generator, 2. Module Area - Arbitrary Building 07-Mounting Surface East

Name	Arbitrary Building 07-Mounting Surface East
PV Modules	24 x LR5-66HTH-535M (v1)
Manufacturer	LONGI Solar
Inclination	10 °
Orientation	South 179 °
Installation Type	Mounted - Roof
PV Generator Surface	57.0 m²

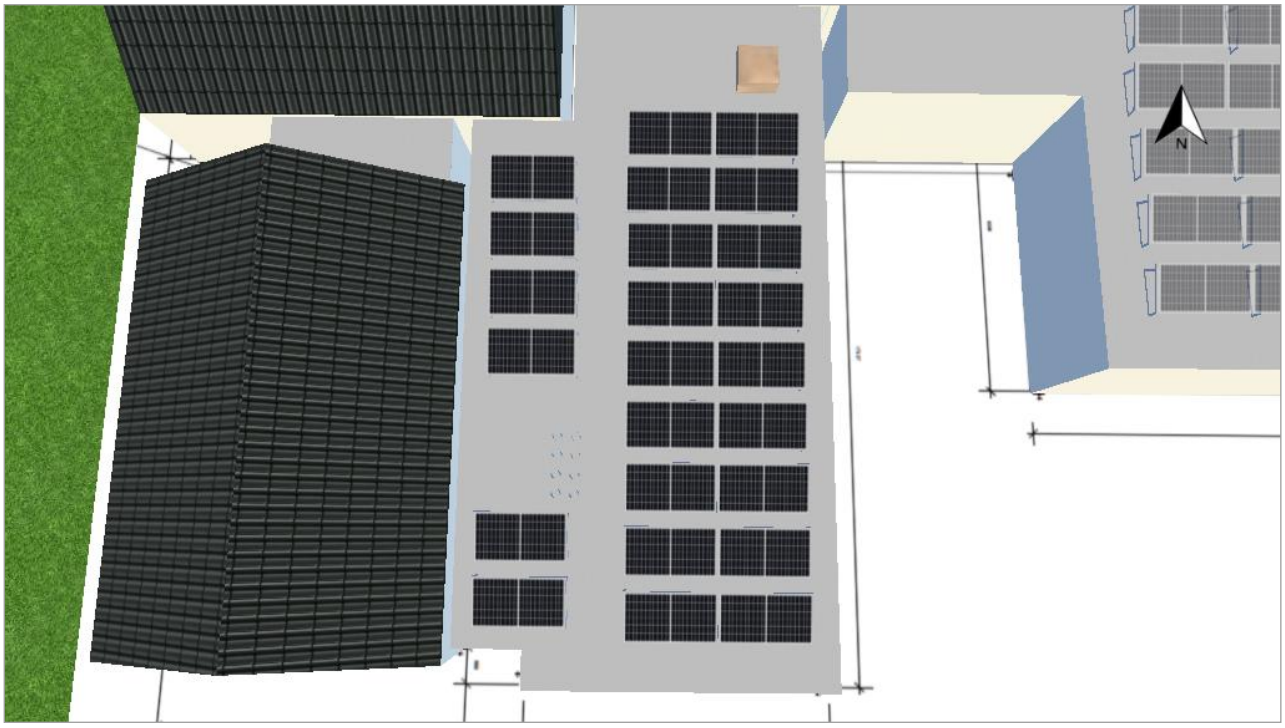


Figure: 2. Module Area - Arbitrary Building 07-Mounting Surface East

Inverter configuration

Configuration 1

Module Area	Arbitrary Building 08-Mounting Surface North
Inverter 1	
Model	X3-PRO-15K-G2 (v3)
Manufacturer	SolaX Power Co., Ltd.
Quantity	1
Sizing Factor	114.1 %
Configuration	MPP 1: 2 x 8
	MPP 2: 2 x 8

Configuration 2

Module Area	Arbitrary Building 07-Mounting Surface East
Inverter 1	
Model	X3-PRO-15K-G2 (v3)
Manufacturer	SolaX Power Co., Ltd.
Quantity	1
Sizing Factor	85.6 %
Configuration	MPP 1:
	2 x 9
	MPP 2:
	1 x 6

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	29.96	kWp
Spec. Annual Yield	832.37	kWh/kWp
Performance Ratio (PR)	79.59	%
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Grid Export	24,960	kWh/Year
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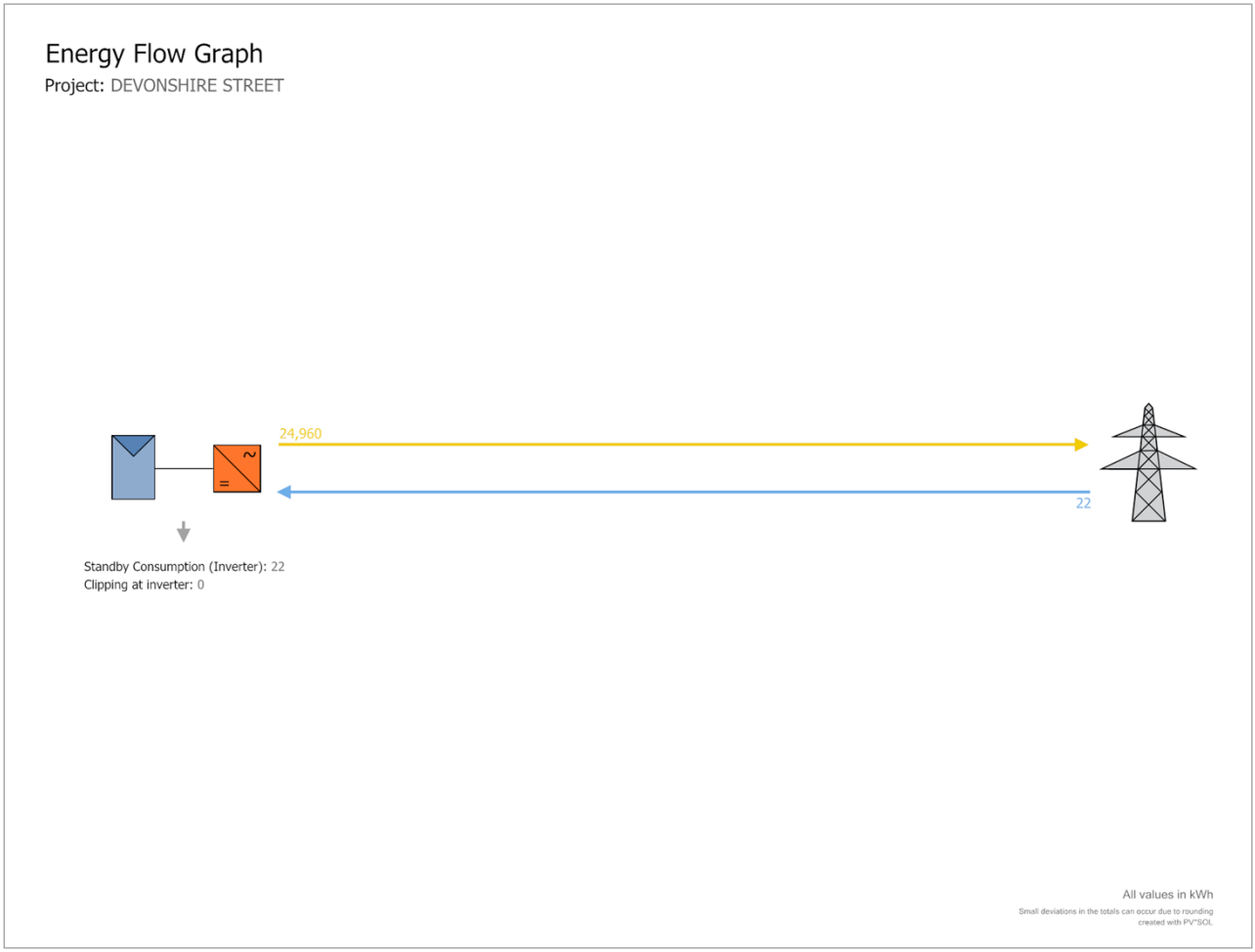


Figure: Energy flow

Data Sheets

PV Module Data Sheet

PV Module: LR5-66HTH-535M (v1)

Manufacturer	LONGI Solar	
Available	Yes	
Electrical Data		
Cell Type	Si monocrystalline	
Half-cell module	Yes	
Cell Count	132	
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	40.38	V
MPP Current	13.25	A
Open Circuit Voltage	48.72	V
Short-Circuit Current	14.07	A
Increase open circuit voltage before stabilisation	0	%
Nominal output	535	W
Fill Factor	78.05	%
Efficiency	22.53	%
I/V Part Load Characteristics		
Values source	Manufacturer/user-created	
Irradiance	200	W/m²
Voltage in MPP at Part Load	40.05	V
Current in MPP at Part Load	2.701	A
Open Circuit Voltage (Part Load)	46.031	V
Short Circuit Current at Part Load	2.814	A
Additional Parameters		
Temperature Coefficient of Voc	-118	mV/K
Temperature Coefficient of Isc	7.46	mA/K
Temperature Coefficient of Pmpp	-0.29	%/K
Incident Angle Modifier (IAM)	100	%
Maximum System Voltage	1500	V
Mechanical Data		
Width	1134	mm
Height	2094	mm
Depth	35	mm
Frame Width	31	mm
Weight	26	kg

Inverter Data Sheet

Inverter: X3-PRO-15K-G2 (v3)

Manufacturer	SolaX Power Co., Ltd.	
Available	Yes	
Electrical data - DC		
DC nominal output	15	kW
Max. DC Power	22.5	kW
Nom. DC Voltage	650	V
Max. Input Voltage	1100	V
Max. Input Current	64	A
Max. short circuit current	80	A
Number of DC Inlets	4	
Electrical data - AC		
AC Power Rating	15	kW
Max. AC Power	16.5	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	1	%/100V
Min. Feed-in Power	100	W
Standby Consumption	0.4	W
Night Consumption	3	W
MPP Tracker		
Output Range < 20% of Power Rating	97.95	%
Output Range > 20% of Power Rating	98.2	%
Count of MPP Trackers	2	
MPP Tracker 1-2		
Max. Input Current	32	A
Max. short circuit current	40	A
Max. Input Power	12	kW
Min. MPP Voltage	160	V
Max. MPP Voltage	980	V

Plans and parts list

Circuit Diagram

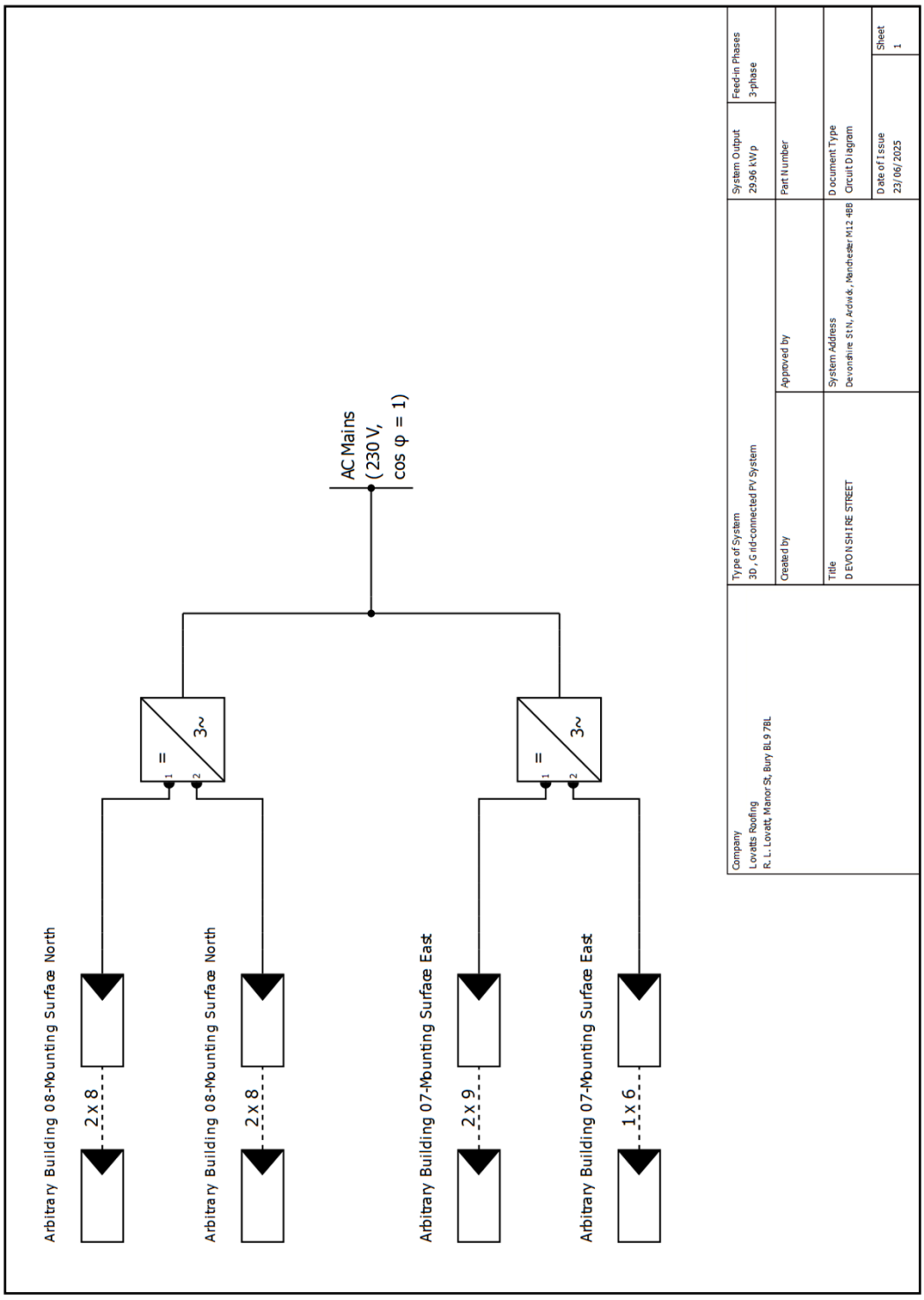


Figure: Circuit Diagram

Screenshots, 3D Design

Environment



Figure: Screenshot01