



50 CoWorkz Business Centre
Minerva Avenue
Chester CH1 4QL

T 0344 567 9032
www.genfit.co.uk
info@genfit.co.uk

Notes:

Revisions:

CONSTRUCTION ISSUE

Client: TJM Projects

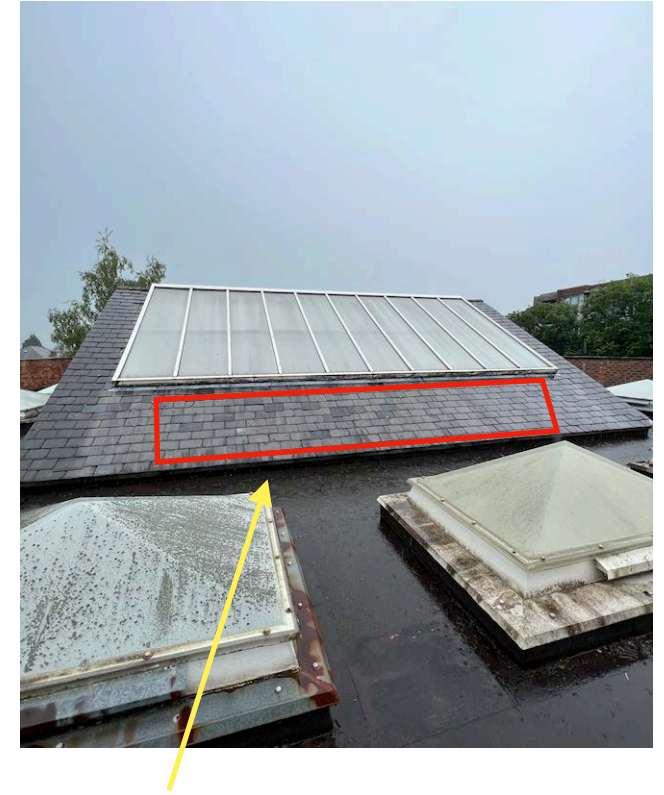
Location: The Place @ Platt Lane

Project: PV System

Title: Site Plan

Dwn: LM Chkd: LM Scale: NTS Date: 05/07/23

Dwg No: PlattLane Rev: 1



6 x 410W panels to be mounted here using S flex mounting system.

Refer to S Flex design for all specifications.



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DC 6mm 2 core
Cable to be taken
down the wall on a
cable tray and
through the wall into
the Switch room



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Inverter to be
installed here in
the switch room



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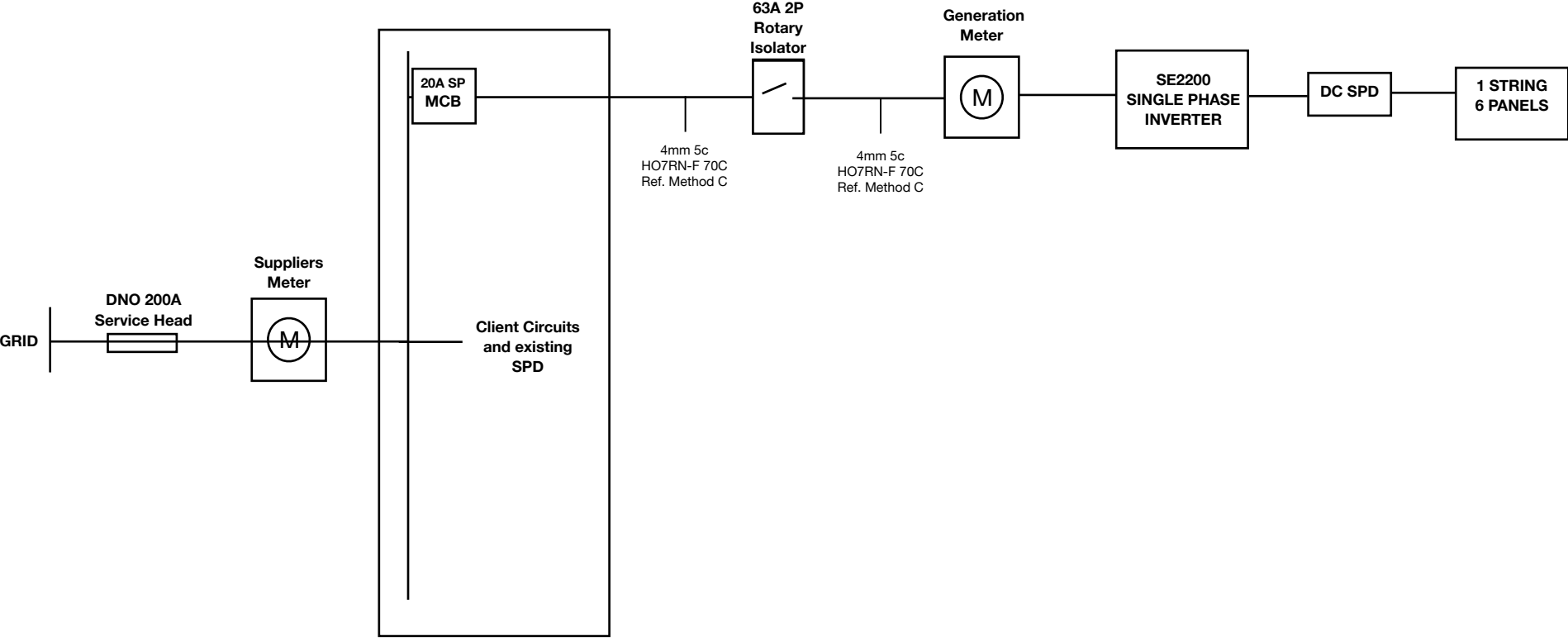
Location: The Place @ Platt Lane

Project: PV System

Title: Site Plan

Dwn: LM Chkd: LM Scale: NTS Date: 05/07/23

Dwg No: PlattLane Rev: 1





Project report
The Place at Platt Lane -
Gen Fit
7/27/2023

SYSTEM INFORMATION

6 Modules
2.4 kWp

CREATED BY

Solen Energy UK Limited
Pete Roti
19 Montague Road
WA8 8FZ WIDNES
0151 448 9662 (Ext: 254)
pete.roti@solenenergy.com

SUSTAINABLE ENERGY – SECURELY ANCHORED

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General Information

This project report is based on the project data provided by the customer. Please check that all information in the project report is correct. Changes can lead to different static requirements and material quantities.

Since each roof has its own project-specific characteristics, expert clarification must always be carried out before installation. The installer has to check that the existing roof covering and substructure is suitable for the loads imposed by the PV system before installation occurs. The installer further has to check the condition of the roof substructure, the quality of the roof covering and the maximum loadbearing capacity of the roof structure. Reach out to a local structural engineer for that purpose.

It is essential to observe the specifications in the installation instructions and the project report during installation. Non-observance of the specifications in the installation instructions and the project report can lead to damage to the PV system and the building and it may result in danger to life and limb!

When installing the PV system, always ensure that the module manufacturer's installation instructions are also observed.

The installation instructions regulate the basic installation steps. The object-specific project report takes into account the information on which the planning is based and may, under certain circumstances, have slightly different information regarding the areas of application of the installation system. Please observe the system-specific instructions and the link to the installation instructions in the respective roof section.

A PV system is an integral part of the building structure. Hence, for the purpose of electrical safety, all metallic parts must be electrically connected and integrated into the local equipotential bonding system in accordance with IEC 60364 and their corresponding national norms. Please create a grounding concept on site. In our product catalog we offer different components that can be combined for this purpose.

You can find our installation instructions at <http://www.sflex.com> (Downloads). Our general terms and conditions apply. These can be viewed at <http://www.sflex.com>.

QR-Code: Download Area



System note: Pitched Roof installation

The system-specific specifications (such as expansion joints and separation distances) from the installation instructions must be strictly adhered to for planning and installation.

Since individual project-related special features must be taken into account for each roof (above-rafter insulation, special tiles, etc.), expert clarification must always be provided before installation.

Please take these special features into account when selecting an item.

QR-Code: Assembly instruction Pitched Roof



PLANNED BY

User Name	peterroti
Company	Solen Energy UK Limited
Phone	0151 448 9662 (Ext: 254)
Street	19 Montague Road
City	WIDNES
Postal Code	WA8 8FZ
Project Number:	SF_DE_VYNdyBi

COMMENT

Slate Roof - Solar Limpets

MASTER DATA

Project Name	The Place at Platt Lane - Gen Fit
Project Number:	SF_DE_VYNdyBi
Comment	Slate Roof - Solar Limpets
Planning Responsible	Pete Roti
Software v.:	11.0.10.21330
Amount Modules	6
System Size	2.4 kWp
Orientation [°]	179
Roofpitch [°]	39
Allocated Area	11.72 m ²

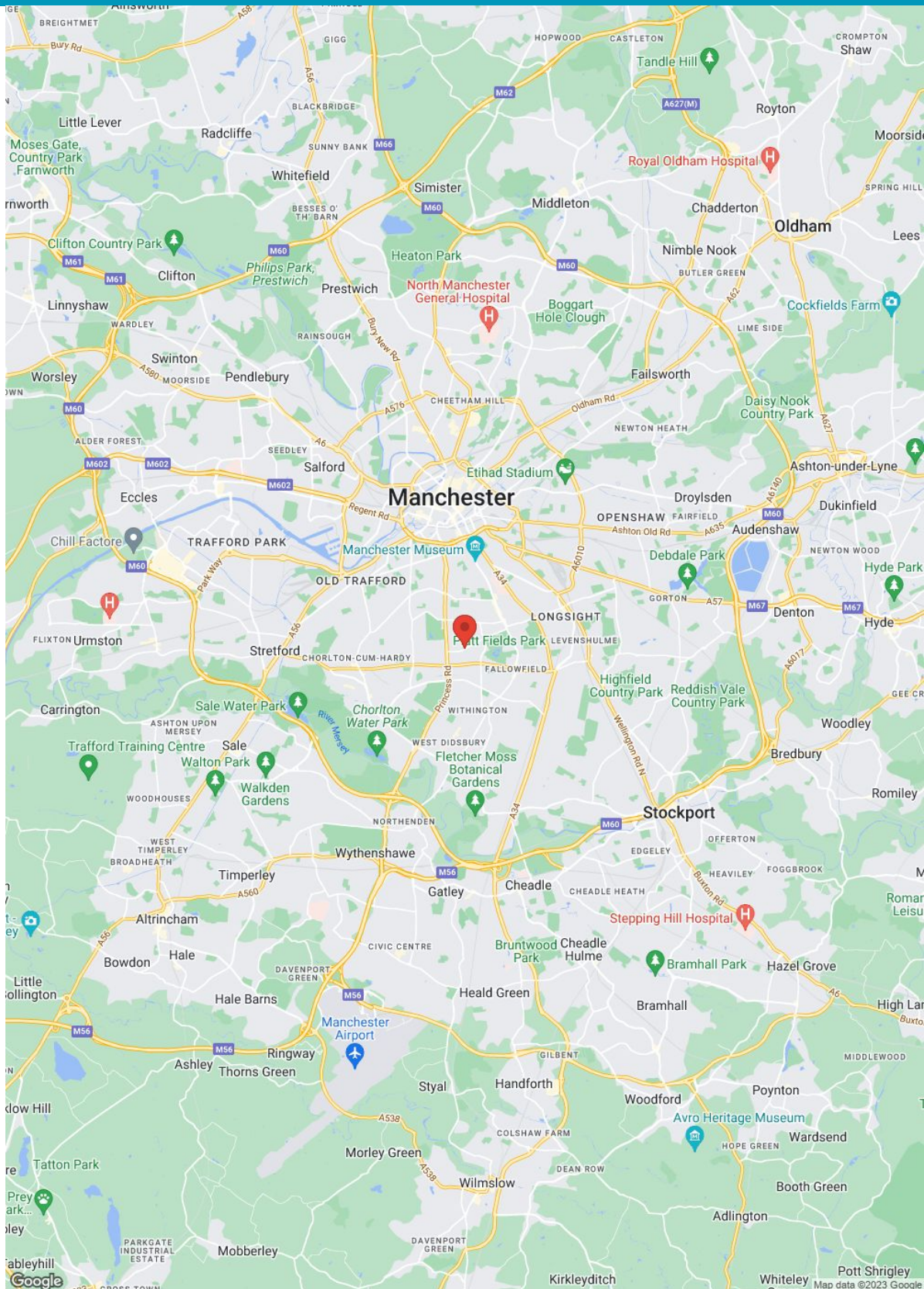
PROJECT ADDRESS

Name	The Place at Platt Lane
Company	Gen Fit
Street Address	Platt Lane, Fallowfield
Postal code	M14 7FZ
City	Manchester
Phone	
Email	
Notes	
Country	United Kingdom
Latitude [°]	53.44689
Longitude [°]	-2.23778
Altitude [m]	34

SHIPPING ADDRESS

Name	The Place at Platt Lane
Street Address	Platt Lane, Fallowfield
Postal code	M14 7FZ
City	Manchester
Country	United Kingdom

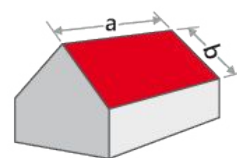
PROJECT LOCATION - GOOGLE MAPS



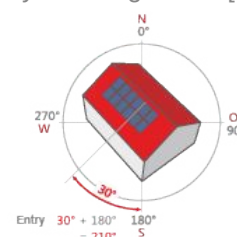
ROOF [ROOF_1 (SOUTH)]

Ridge length a [m]	11
Width b [m]	6
Building height h [m]	10
Slope of roof [°]	39
Roofing	Slate/Prefa Roof
System alignment [°]	179
5 Roof construction total [mm]:	358

Ridge roof



System alignment [°]*



SNOW LOAD BS EN 1991-1-3 NA:2003

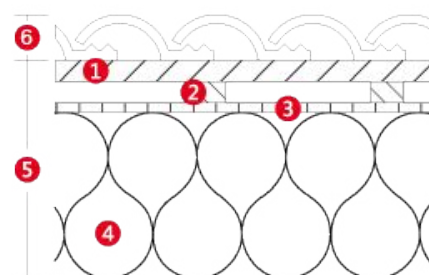
Snow load [kN/m²]*:	0.314
Height above sea level [m]:	34
Slope of roof [°]:	39
Snow load zone:	Area 3
Shape coefficient μ_i :	0.84

WIND LOAD BS EN 1991-1-4:2005+A1:2010

Wind load [kN/m²]*:	0.595
Terrain Category:	3
Wind load calculation according to BRE 489:	Yes
Building height h [m] :	10
z-hdis	7.282
Distance to edge of City [km]	6.36
Distance to Ocean [km]	55.2

ROOF STRUCTURE [ROOF_1 (SOUTH)]

1 Batten [mm]	30
2 Counter Batten [mm]	40
3 Sheathing [mm]	18
4 Insulation [mm]	270
5 Roof construction total [mm]:	358



CONSTRUCTION DESIGN (CD) -- RAFTER [ROOF_1 (SOUTH)]

Distance [mm] 400

First rafter offset from
verge left [mm] 100

Material Wood

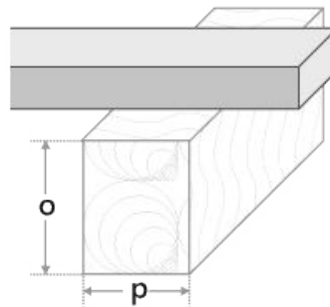
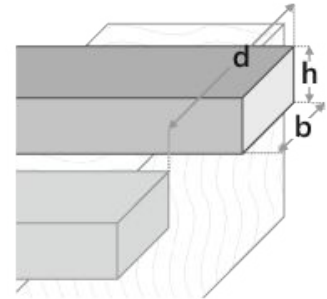
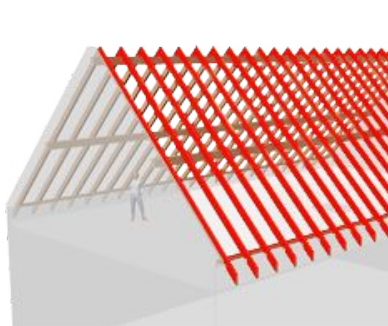
Batten Distance d [mm] 320

Distance to first Batten
[mm] 100

Rafter Height o [mm] 100

Rafter Width p [mm] 50

Material Wood



PV-MODULE [ROOF_1 (SOUTH)]

Manufacturer:	LONGI Solar
Name	LR5-54HPB-400M*
Width [mm]:	1134
Height [mm]:	1722
Thickness [mm]:	30
Framing:	Aluminum
Weight (kg)	20.8
Nominal Power [Watt]:	400
Module Type:	Monocrystalline
Installation:	On Both Sides
Frame color	
Temperature coefficient [%/°C]:	-0.34
Efficiency STC:	0.205
Output current MPP - STC [A]:	12.93
Output voltage MPP - STC [V]:	30.94
Short circuit current [A]:	13.72
Open circuit voltage [V]:	36.9
Temperature coefficient Current [%/K]:	0.05
Temperature coefficient Voltage [%/K]:	-0.265
Max. System voltage EU:	1000
Max module backcurrent [A]	25
Galvanic separation required:	No

ANCHOR TYPE & MODEL [ROOF_1 (SOUTH)]

Mounting system type Roof hook slate 30x5

Article description: S:FLEX RH slate stainless steel 1.4301

Item number: 720-200-061

Geometry:

Base plate: 30 mm

Holes: 7 mm

Bracket: 5 mm

Height compensation at rail: 21 mm

Overlap length: 90 mm

Min. rafter width: 36 mm

Static:

$V_{R,d}$ pressure parallel to the roof: 340 N

$N_{R,d+}$ pressure vertical to the roof: 430 N

$N_{R,d-}$ tension vertical to the roof: 465 N

Number of Fixations 12

Max. Utilization of fixation points 82 %

Rail installation system Clamping system (horizontal)

Module rail ST-AK 5/40 Modul

MODULE RAIL [ROOF_1 (SOUTH)]

Module rail No Translation

Max. utilization Module Profile 70.89 %

CLAMPS [ROOF_1 (SOUTH)]

Mid Clamp: Mid Clamp MC AK II Klick 30-50 A

Max. utilization 17 %

End Clamp: End Clamp AK II Klick 30-50 A

Max. utilization 15.86 %

Note: Please check to see if the terminal points of the module conforms with the specifications of the manufacturer. If the access points do not match the specifications of the module manufacturer, it is recommended to contact the module manufacturer in conjunction to obtain a release planning. There is no guarantee that the proposed connection is released by the manufacturer.

STATIC DETAILS [ROOF_1 (SOUTH)]

Allocated Area 11.72 m²

Load on Allocated Area 9.26 kN

Max. Pressure (design): 0.74 kN/m²

Max. Tension (design): -0.38 kN/m²

MODULE LAYOUT PLAN [ROOF_1 (SOUTH)]

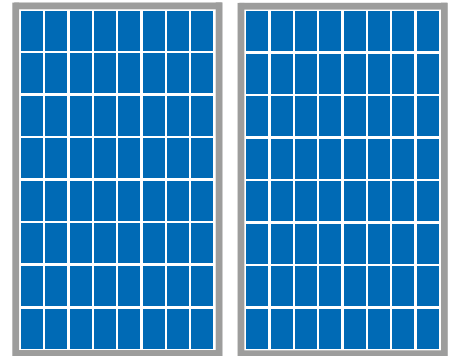
Alignment: Portrait

Horizontal module distance [mm]: 20

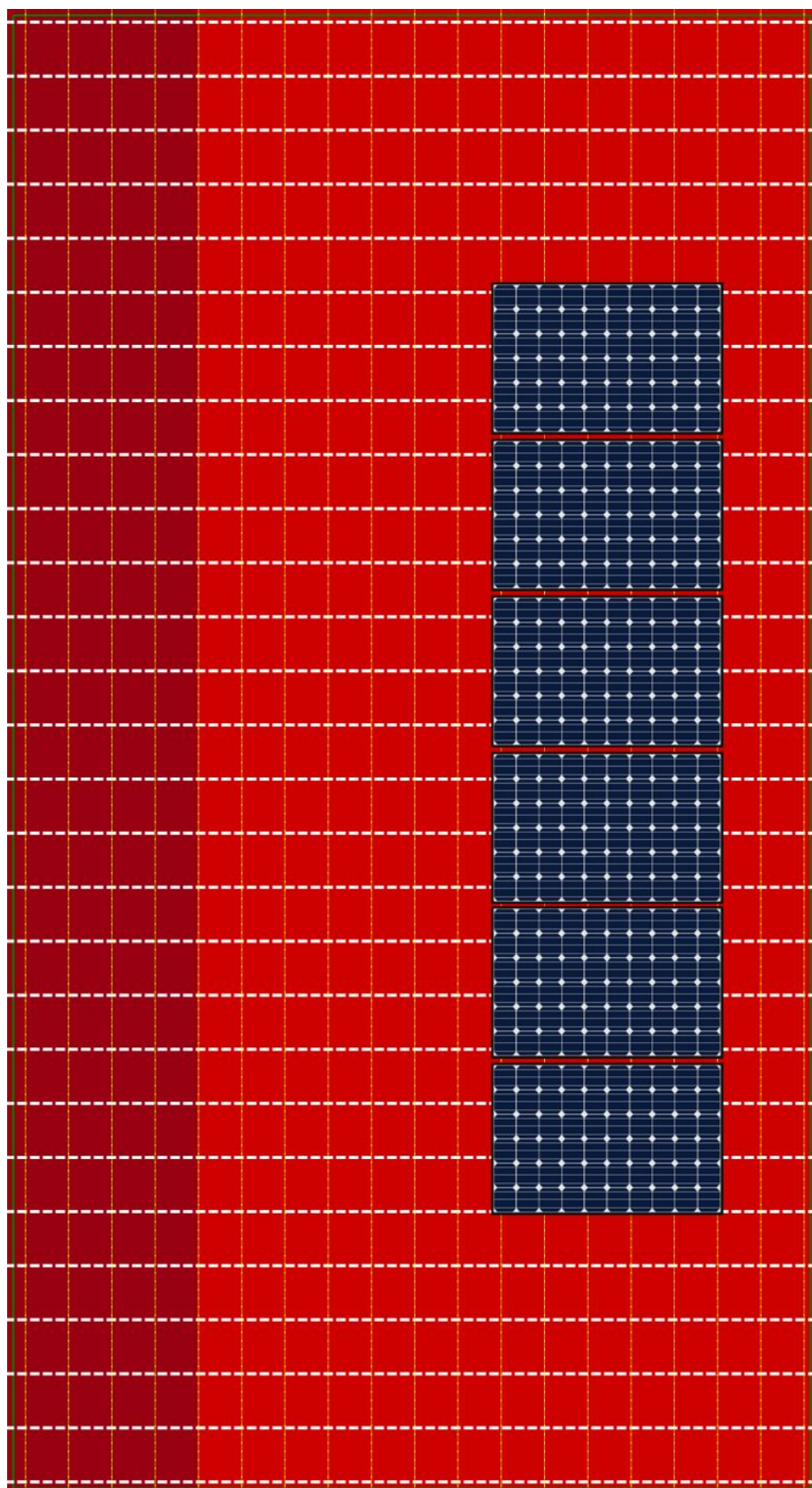
Vertical module distance [mm]: 20

Horizontal starting point (left bottom mm):

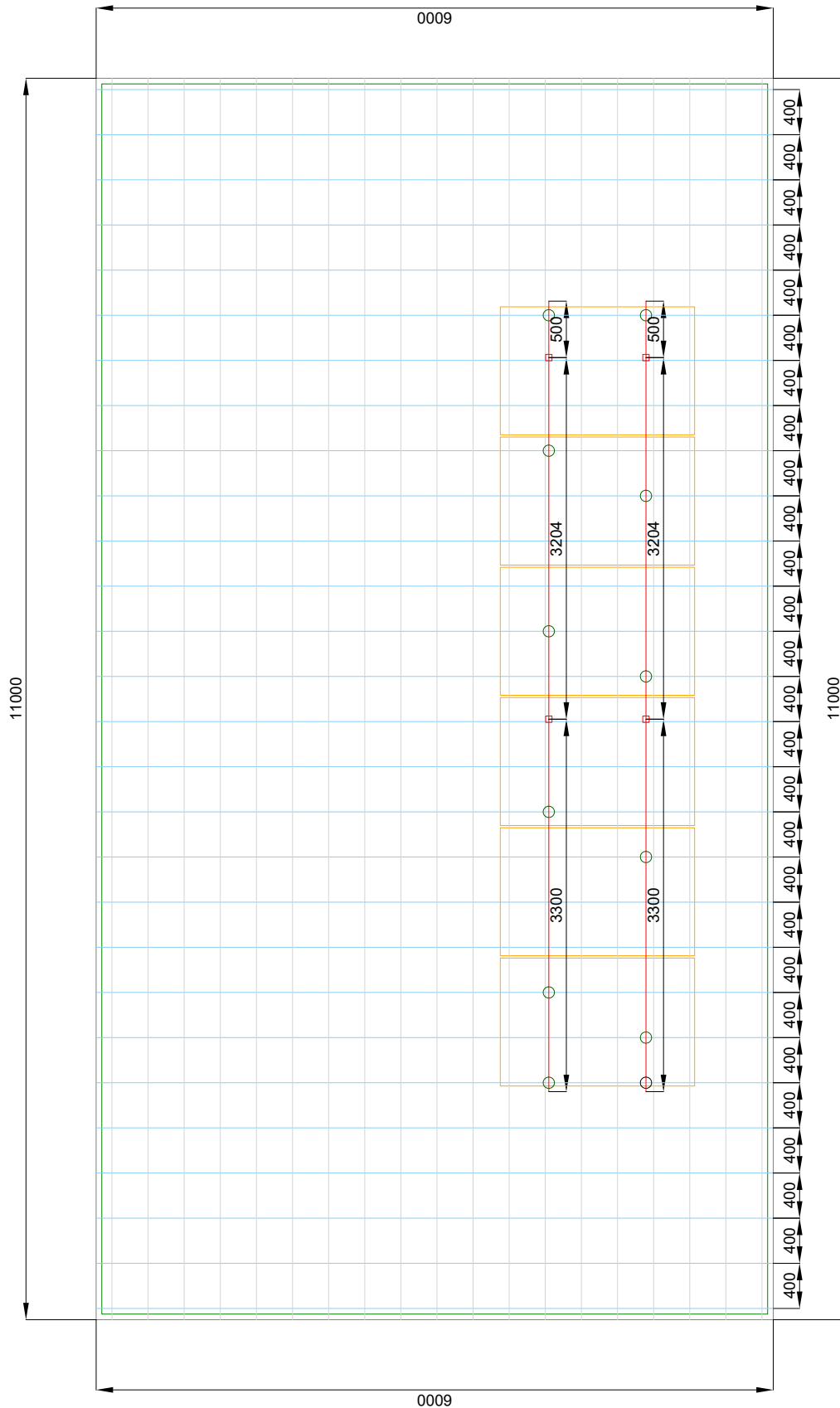
Vertical starting point (left bottom in mm): 300



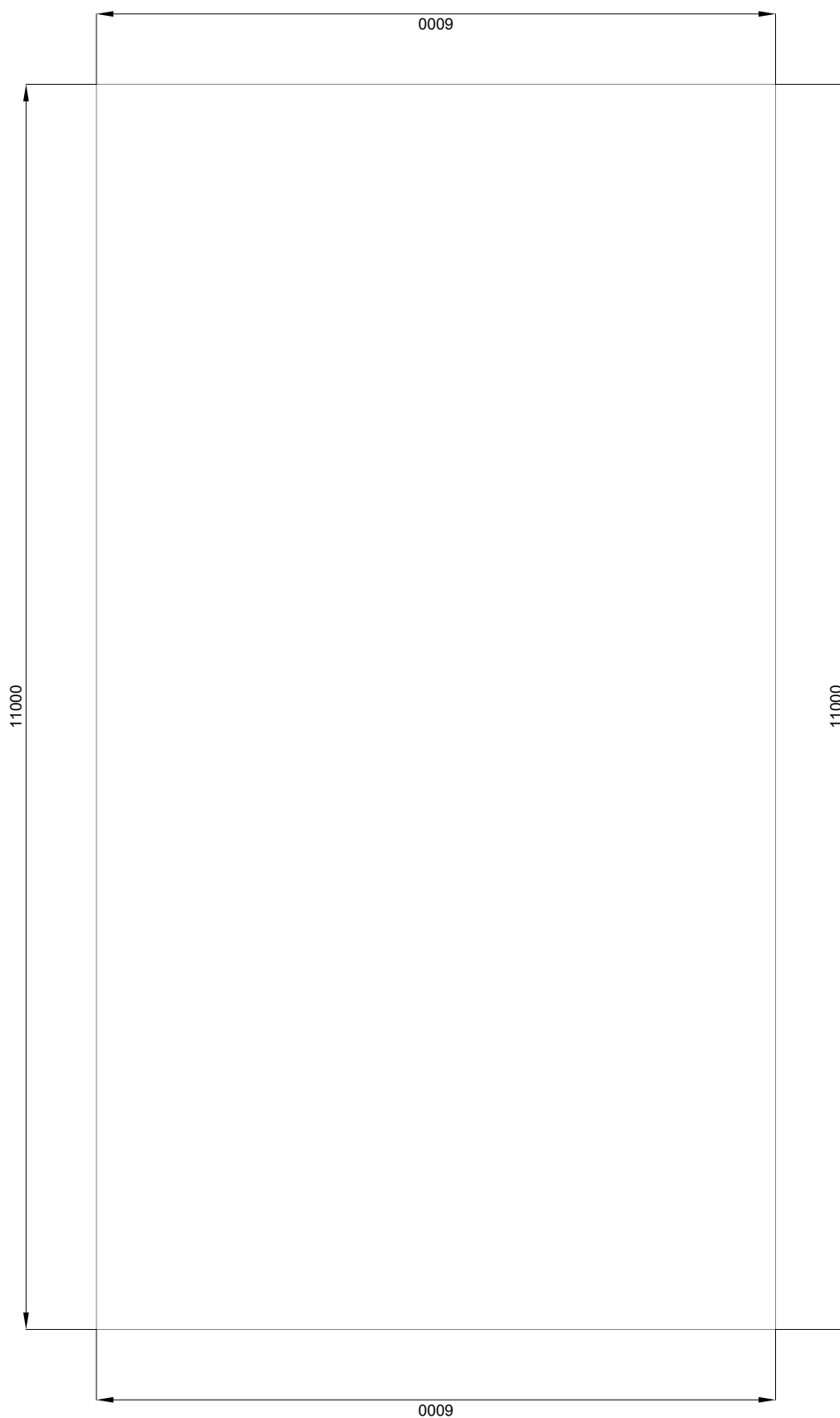
POSITION [ROOF_1 (SOUTH)]



INSTALLATION-PLAN [ROOF_1 (SOUTH)]



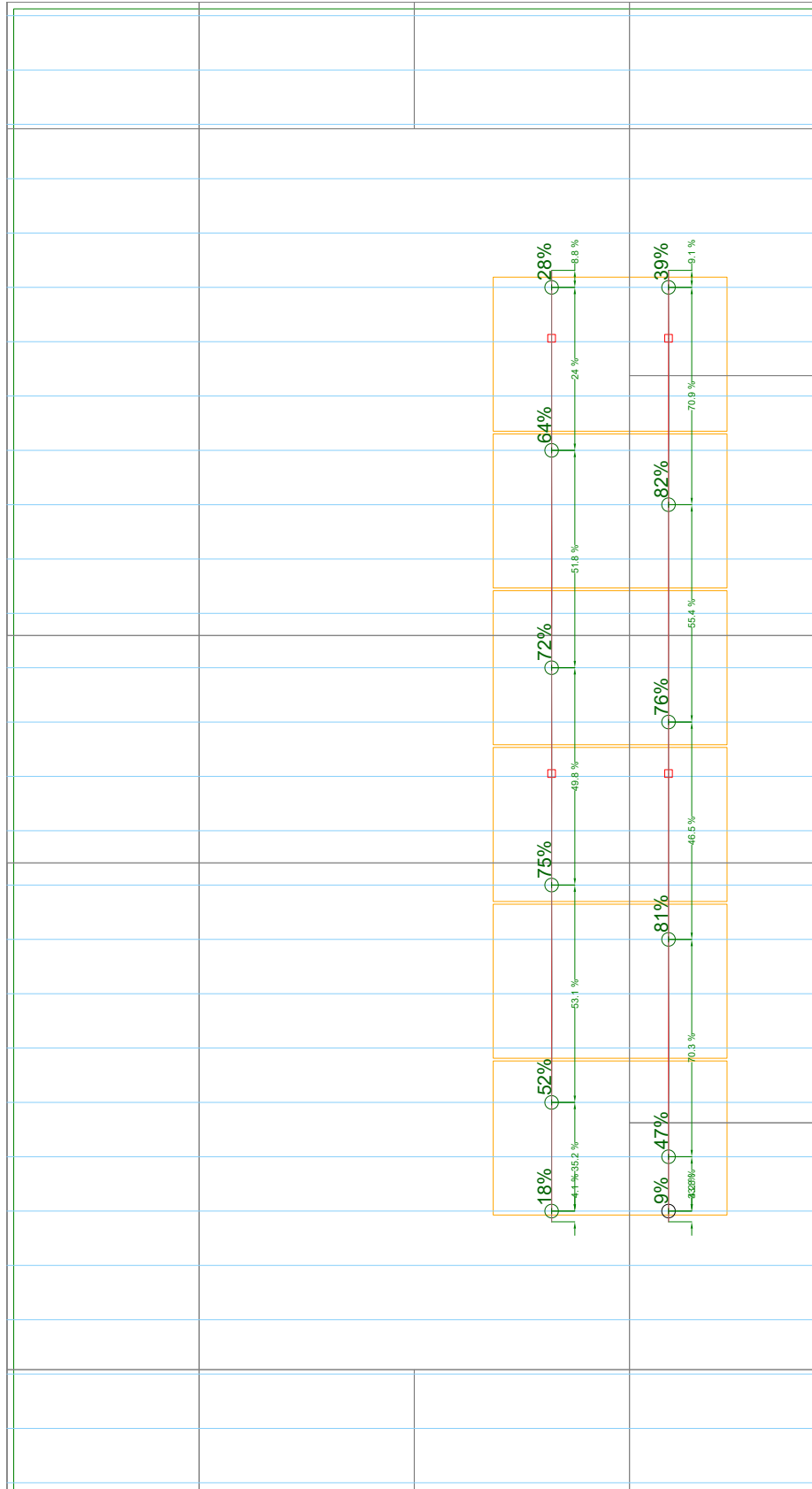
ROOF COORDINATES [ROOF_1 (SOUTH)]



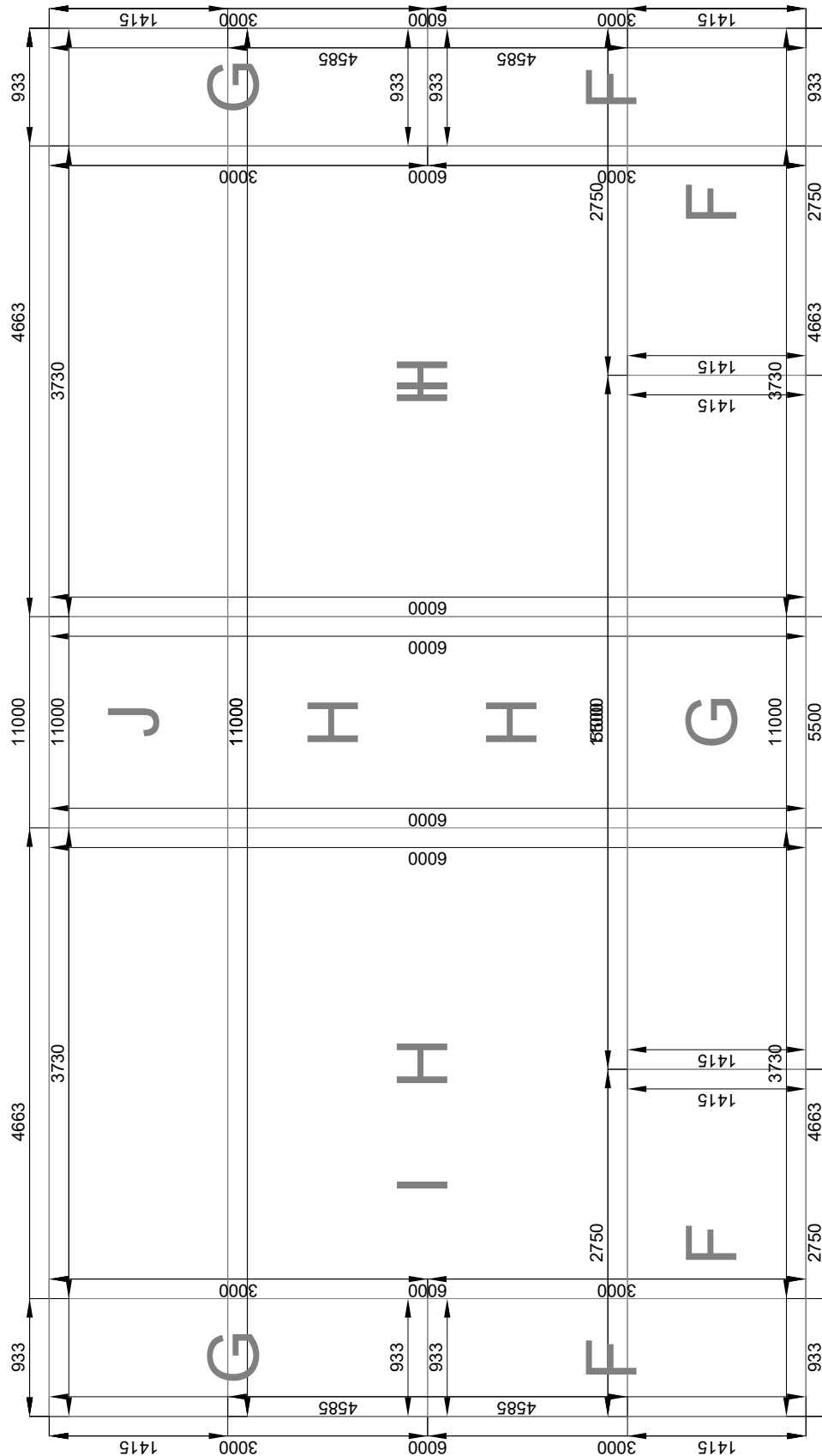
ROOF COORDINATES [ROOF_1 (SOUTH)]

Coordinate 0	X: 0	Y: 0	Z: 10
Coordinate 1	X: 11	Y: 0	Z: 10
Coordinate 2	X: 11	Y: 6	Z: 10
Coordinate 3	X: 0	Y: 6	Z: 10

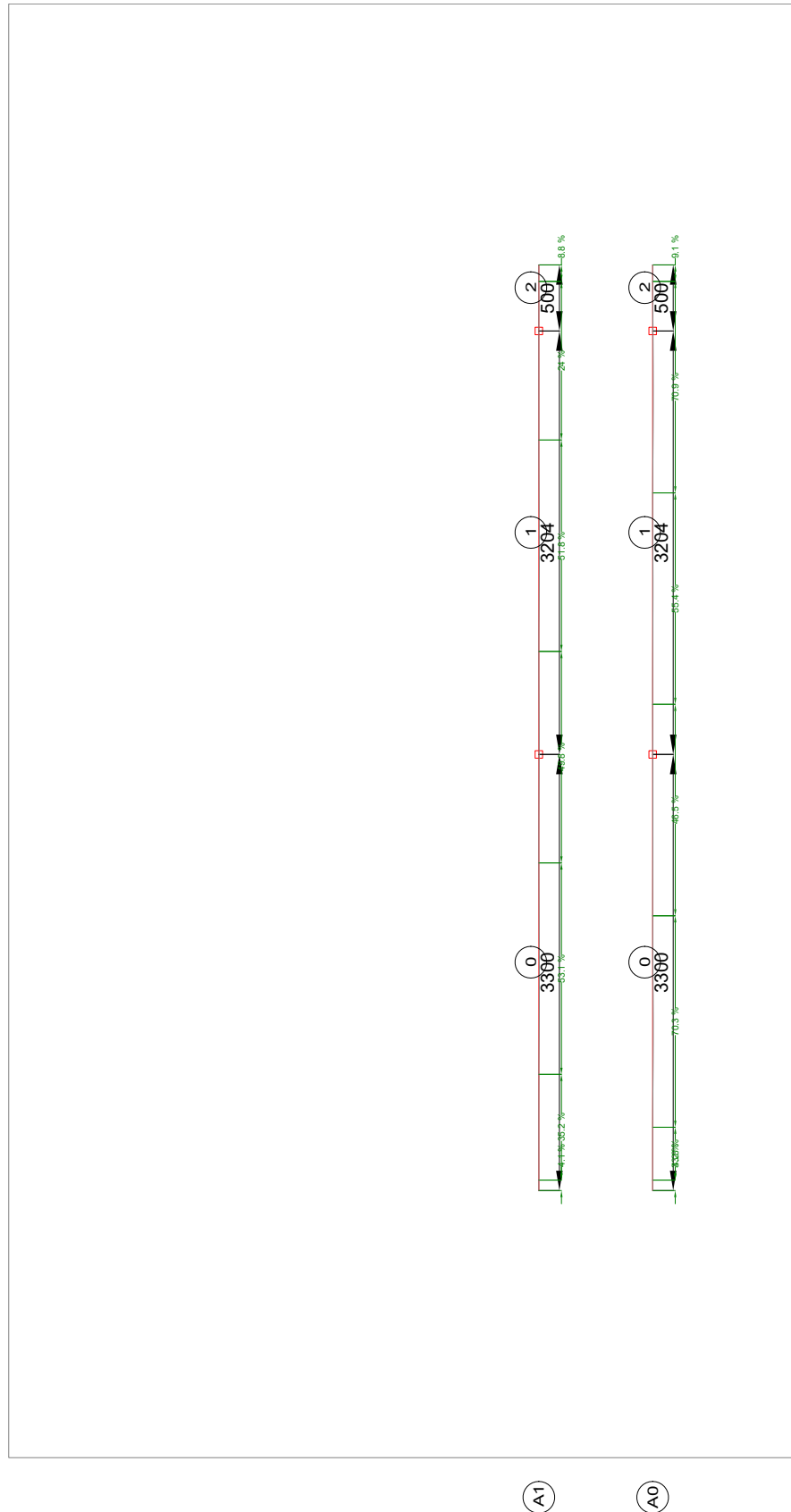
STATIC INFORMATION: UTILISED CAPACITY OF FASTENERS [ROOF_1 (SOUTH)]



STATIC INFORMATION: AREAS [ROOF_1 (SOUTH)]



RAIL CAPACITY [ROOF_1 (SOUTH)]



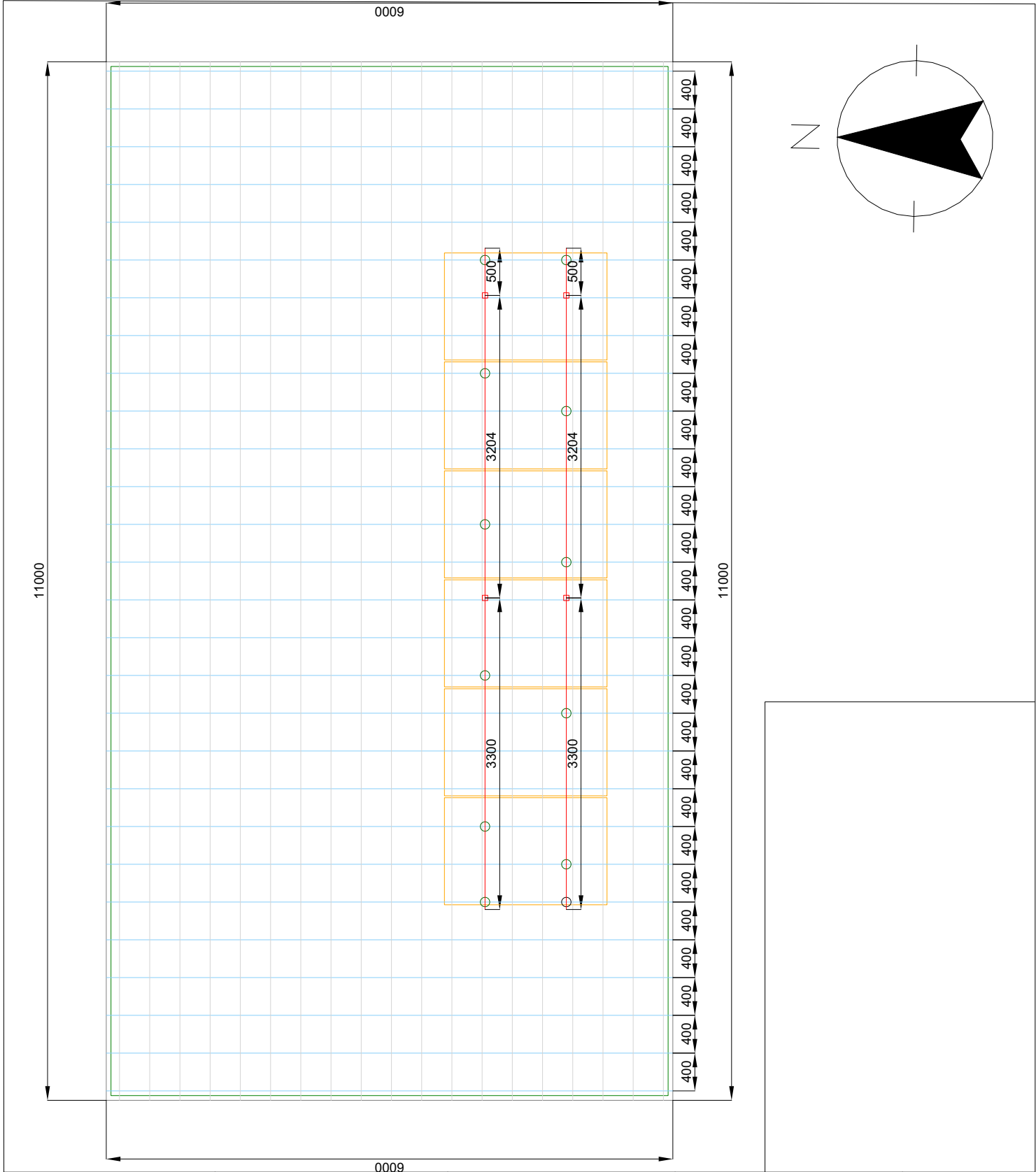
MATERIAL LIST [ROOF_1 (SOUTH)]

Image	Part number	Description	Matchcode	Total Nr.	Anzahl exakt	Total weight (kg)	Length (mm)	Total length (mm)
	30-105-330	ST-AK 5/40 l=3300 mm	Rail - aluminium profile	5	5	10.130	3300.00	16500.00
	30-200-002	Splice 5		10	4	1.740	--	--
	30-400-008	End Clamp AK II klick 30-50 A	for module frames from 30-50 mm	10	4	0.600	--	--
	30-400-049	Mid Clamp MC AK II klick 30-50 A	for module frames from 30-50 mm	40	10	2.000	--	--
	30-500-023	Covering Cap 5		20	4	0.260	--	--
	30-700-002	Slipping protection		25	12	0.200	--	--
	700-100-202	Wood screw countersunk 6x80	TX 25	200	36	2.000	--	--
	720-200-061	S:FLEX RH slate stainless steel 1.4301	material 30x5 mm, stainless steel 1.4301 incl. hammerhead fixing	20	12	9.000	--	--
	720-800-004	Cable clip 0,7-3,0 mm KC 15	variable cable management parallel / 90° to edge	100	6	0.300	--	--
						26.23	--	--

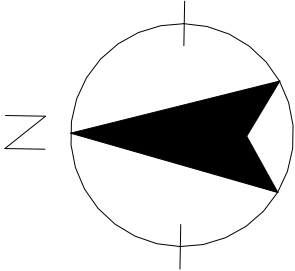
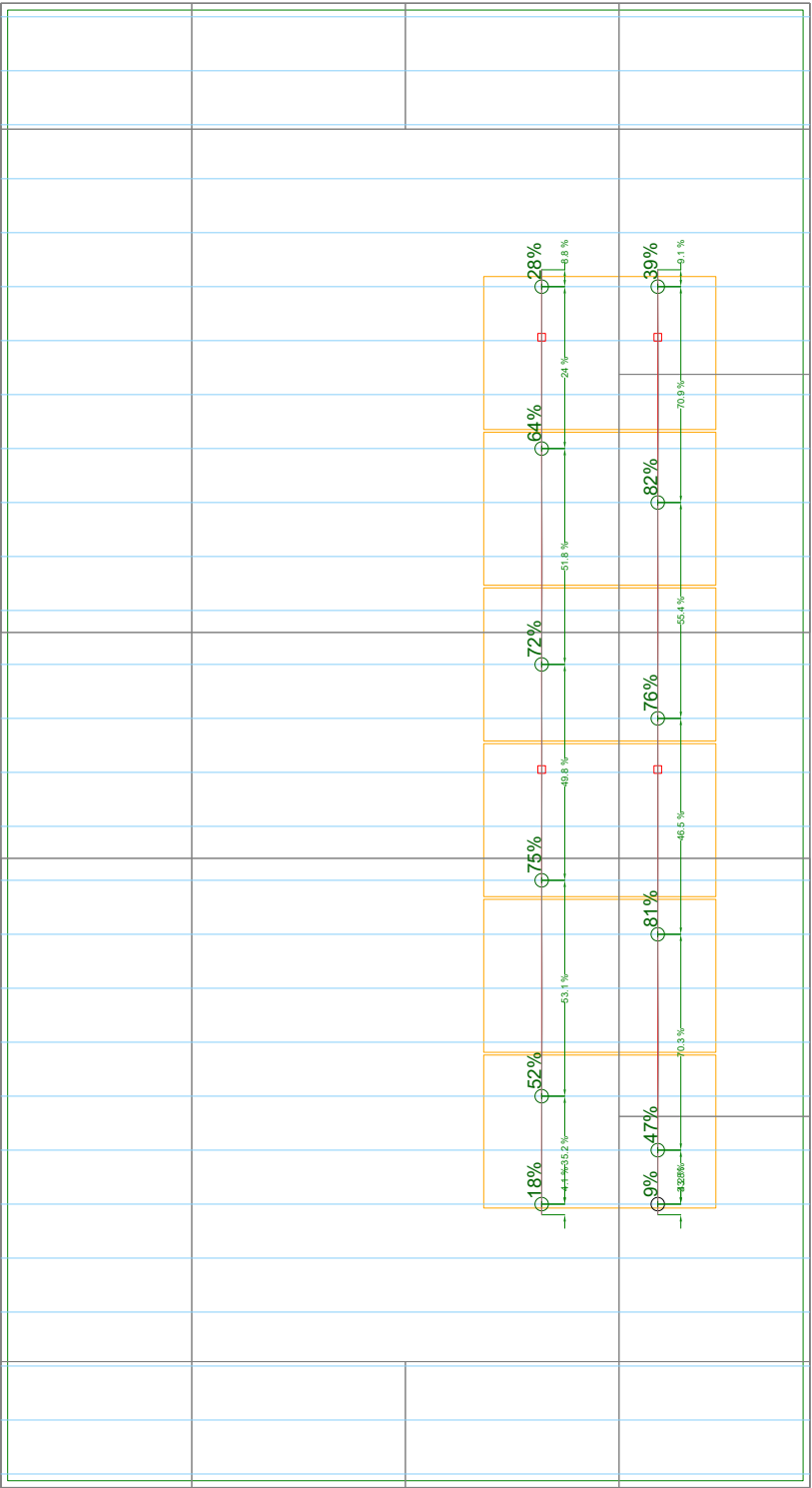
RAIL CUTS FOR ST-AK 5/40 L=3300 MM [30-105-330]

3204		95	2
500	500	2298	1

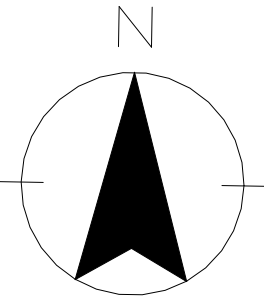
Important remark: The accuracy of a proper layout is not guaranteed. Depending on the level of complexity, more than one ideal layout may exist.



-	-	Roti	-	1:56
		-		-
		Title The Place at Platt Lane - Gen Fit Roof_1 (South)		Project Number SF_DE_VYNdyyBi
		R1	7/27/2023	DE 1/1



-	-	Roti	-	1:56
		-	-	
		Title The Place at Platt Lane - Gen Fit Roof_1 (South)	Project Number SF_DE_VYNdyyBi	
		R1	7/27/2023	DE 1/1



Hi-MO 5m

LR5-54HPB 390~410M

- Suitable for distributed projects
- Advanced module technology delivers superior module efficiency
 - M10 Gallium-doped Wafer
 - Integrated segmented ribbons
 - 9-busbar Half-cut Cell
- Excellent outdoor power generation performance
- Aesthetic appearance with all black module design



12-year Warranty for
Materials and Processing



25-year Warranty for Extra
Linear Power Output

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730

ISO 9001:2015: ISO Quality Management System

ISO 14001: 2015: ISO Environment Management System

TS62941: Guideline for module design qualification and type approval

ISO 45001: 2018: Occupational Health and Safety

LONGI



21.0%
MAX MODULE
EFFICIENCY

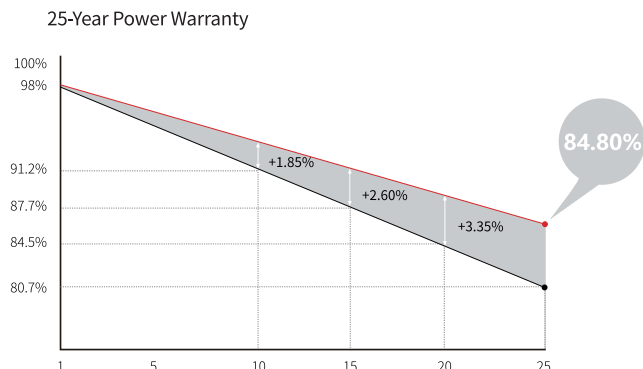
0~3%
POWER
TOLERANCE

<2%
FIRST YEAR
POWER DEGRADATION

0.55%
YEAR 2-25
POWER DEGRADATION

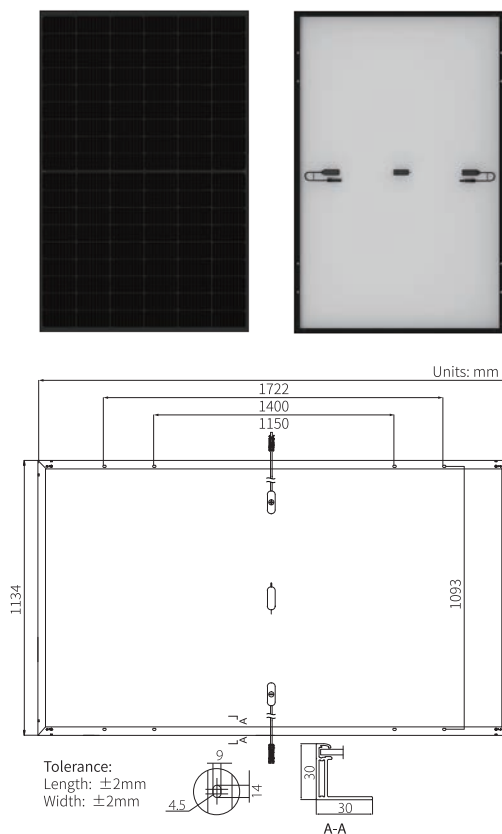
HALF-CELL
Lower operating temperature

Additional Value



Mechanical Parameters

Cell Orientation	108 (6×18)
Junction Box	IP68, three diodes
Output Cable	4mm ² , +400, -200mm length can be customized
Glass	Single glass, 3.2mm coated tempered glass
Frame	Anodized aluminum alloy frame
Weight	21.5kg
Dimension	1722×1134×30mm
Packaging	36pcs per pallet / 216pcs per 20' GP / 936pcs per 40' HC



Electrical Characteristics

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s Test uncertainty for Pmax: ±3%

Module Type	LR5-54HPB-390M		LR5-54HPB-395M		LR5-54HPB-400M		LR5-54HPB-405M		LR5-54HPB-410M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	390	293.0	395	296.7	400	300.5	405	304.2	410	308.0
Open Circuit Voltage (Voc/V)	36.50	34.32	36.65	34.46	36.80	34.61	36.95	34.75	37.10	34.89
Short Circuit Current (Isc/A)	13.45	10.91	13.55	10.99	13.66	11.08	13.74	11.15	13.84	11.23
Voltage at Maximum Power (Vmp/V)	30.80	28.67	30.95	28.81	31.10	28.95	31.25	29.09	31.40	29.23
Current at Maximum Power (Imp/A)	12.67	10.22	12.77	10.30	12.87	10.39	12.96	10.46	13.06	10.54
Module Efficiency(%)	20.0		20.2		20.5		20.7		21.0	

Operating Parameters

Operational Temperature	-40°C ~ +85°C
Power Output Tolerance	0 ~ 3%
Voc and Isc Tolerance	±3%
Maximum System Voltage	DC1000V (IEC/UL)
Maximum Series Fuse Rating	25A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Fire Rating	UL type 1 or 2 IEC Class C

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.050%/°C
Temperature Coefficient of Voc	-0.265%/°C
Temperature Coefficient of Pmax	-0.340%/°C

Power Optimizer

For Residential Installations

S440 / S500 / S500B



POWER OPTIMIZER

Enabling PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Detects abnormal PV connector behavior, preventing potential safety issues*
- Faster installations with simplified cable management and easy assembly using a single bolt
- Module-level voltage shutdown for installer and firefighter safety
- Flexible system design for maximum space utilization
- Superior efficiency (99.5%)
- Compatible with bifacial PV modules

* Functionality subject to inverter model and firmware version

/ Power Optimizer

For Residential Installations

S440 / S500 / S500B

	S440	S500	S500B	UNIT
INPUT				
Rated Input DC Power ⁽¹⁾	440	500		W
Absolute Maximum Input Voltage (Voc)	60	125		Vdc
MPPT Operating Range	8 – 60	12.5 – 105		Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5	15		Adc
Maximum Efficiency	99.5			%
Weighted Efficiency	98.6			%
Overvoltage Category	II			
OUTPUT DURING OPERATION				
Maximum Output Current	15			Adc
Maximum Output Voltage	60	80		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)				
Safety Output Voltage per Power Optimizer	1 ± 0.1			Vdc
STANDARD COMPLIANCE⁽²⁾				
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3, CISPR11, EN-55011			
Safety	IEC62109-1 (class II safety), UL1741			
Material	UL94 V-0, UV Resistant			
RoHS	Yes			
Fire Safety	VDE-AR-E 2100-712:2013-05			
INSTALLATION SPECIFICATIONS				
Maximum Allowed System Voltage	1000			Vdc
Dimensions (W x L x H)	129 x 155 x 30	129 x 155 x 45		mm
Weight (including cables)	655			gr
Input Connector	MC4 ⁽³⁾			
Input Wire Length	0.1			m
Output Connector	MC4			
Output Wire Length	(+) 2.3, (-) 0.10			m
Operating Temperature Range ⁽⁴⁾	-40 to +85			°C
Protection Rating	IP68			
Relative Humidity	0 – 100			%

(1) Rated power of the module at STC will not exceed the Power Optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed.

(2) For details about CE compliance, see [Declaration of Conformity – CE](#).

(3) For other connector types please contact SolarEdge.

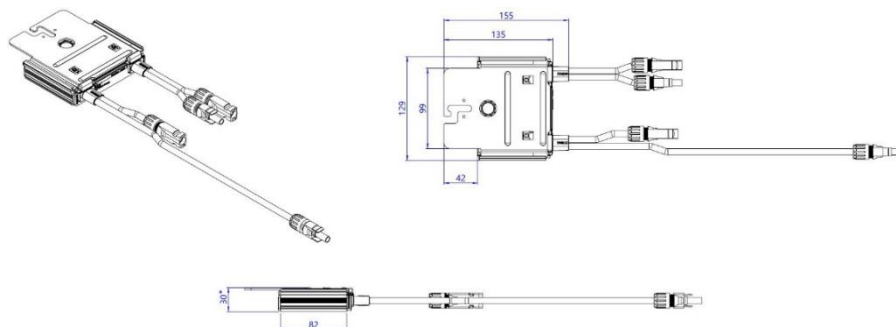
(4) For ambient temperature above +70°C power de-rating is applied. Refer to [Power Optimizers Temperature De-Rating Technical Note](#) for details.

PV System Design Using a SolarEdge Inverter ⁽⁵⁾	SolarEdge Home Wave Single Phase	Three Phase SExxK-RWB	Three Phase for 230/400V Grid	Three Phase for 277/480V Grid	
Minimum String Length (Power Optimizers)	S440, S500 S500B	8 6	9 8	16 14	18
Maximum String Length (Power Optimizers)	25	20	50		
Maximum Continuous Power per String	5700	5625	11250	12750	W
Maximum Allowed Connected Power per String (Permitted only when the power difference between strings is less than 2,000W)	See ⁽⁶⁾	See ⁽⁶⁾	13500	15000	W
Parallel Strings of Different Lengths or Orientations	Yes				

(5) It is not allowed to mix S-series and P-series Power Optimizers in new installations.

(6) If the inverter's rated AC power ≤ maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power.

Refer to [Application Note: Single String Design Guidelines](#).



* 45mm for S500B

Single Phase Inverter with HD-Wave Technology

SE2200H, SE3000H, SE3500H, SE3680H,
SE4000H, SE5000H, SE6000H

INVERTERS



Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Record-breaking efficiency
- Extremely small, lightweight and easy to install
- High reliability
- Built-in module-level monitoring
- Outdoor and indoor installation
- Fixed voltage inverter for longer strings
- Advanced safety feature - integrated arc fault protection

/ Single Phase Inverter with HD-Wave Technology

SE2200H, SE3000H, SE3500H, SE3680H, SE4000H, SE5000H, SE6000H

	SE2200H	SE3000H	SE3500H	SE3680H	SE4000H	SE5000H	SE6000H	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	2200	3000	3500	3680	4000	5000 ⁽¹⁾	6000	VA
Maximum AC Power Output	2200	3000	3500	3680	4000	5000 ⁽¹⁾	6000	VA
AC Output Voltage (Nominal)	220/230							Vac
AC Output Voltage Range	184 - 264.5							Vac
AC Frequency (Nominal)	50/60 ± 5							Hz
Maximum Continuous Output Current	10	14	16	16	18.5	23	27.5	A
Total Harmonic Distortion (THD)	<3							%
Power Factor	1, adjustable -0.9 to 0.9							
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power	3400	4650	5425	5700	6200	7750 ⁽²⁾	9300	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380							Vdc
Maximum Input Current	6.5	9	10	10.5	11.5	13.5	16.5	Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600kΩ Sensitivity per Unit							
Maximum Inverter Efficiency	99.2							%
European Weighted Efficiency	98.3	98.8				99		%
Nighttime Power Consumption	< 2.5							W
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, Wi-Fi (optional), Cellular (optional), ZigBee (optional)							
Smart Energy Management	Export Limitation							
Inverter Commissioning	With the SetApp mobile application using built in Wi-Fi station for local connection							
Arc Fault Protection	Integrated, User Configurable (According to UL1699B)							
STANDARD COMPLIANCE								
Safety	IEC-62109-1/2							
Grid Connection Standards	IEC61727, IEC62116, EN 50438, VDE-AR-N-4105, VDE 0126-1-1, UTE_C_15-712, G98, G99, CEI-021, ÖNORM, TF3.2.1, C10-11, NRS 097-2-1							
Emissions	IEC61000-6-2, IEC61000-6-3, IEC61000-3-11, IEC61000-3-12, FCC Part 15 Class B							
INSTALLATION SPECIFICATIONS								
AC Output - Supported Cable Diameter	9-16							mm
AC - Supported Wire Cross Section	1-13							mm²
DC Input	1 x MC4				2 x MC4 pair			
Dimensions (H x W x D)	280 x 370 x 142							mm
Noise	< 25							dBA
Weight	7.8				9		10.6	kg
Cooling	Natural Convection							
Operating Temperature Range	-40 to +60 ⁽³⁾							°C
Protection Rating	IP65 — Outdoor and Indoor							

⁽¹⁾ 4600VA in Germany

⁽²⁾ 7130VA in Germany

⁽³⁾ Full power up to at least 50°C / 122°F. For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note.pdf>