

Solar energy systems from Schweizer

Project report: Solrif Årehuset

Last layout change: 12/08/2024 Edited by: Matas Šapoka



Street: Vilnius
Zip-code and city: Vilnius Vilnius

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Master data

Project Name	Solrif Årehuset	
Comment		
Planning Responsible		
Software v.:	11.0.30.41488	
Amount Modules (435 Wp)	16	6.96 kWp
System Size	6.96 kWp	
Orientation [°]	180	
Roofpitch [°]	10	

Carbon impact

Carbon footprint of mounting system	Approx. 125.86 kg CO ₂ equiv.
Carbon footprint of PV modules	- CO ₂ equiv.
GHG emission avoided by roofing	Approx. 288.76 kg CO ₂ equiv.
Data source	ESU services, ESU database, 12.4.2021 Manufacturer data according to Aluminium Stewardship Initiative (ASI)
Assessment method	Carbon Footprint (IPCC 2021) including additional influences of air transport (Jungbluth & Meili 2019)
System boundary	Production, procurement and transport to delivery warehouse Satteins (AT) (Scope 1, 2, 3)

Project Address

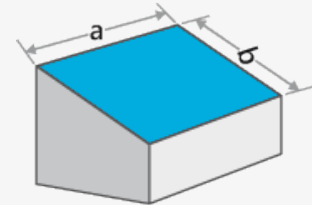
Name	
Company	SoliTek
Street Address	Vilnius
Postal code	Vilnius
City	Vilnius
Phone	
Email	
Notes	
Country	Lithuania
Latitude [°]	54.68716
Longitude [°]	25.27965
Altitude [m]	100

The customer is responsible for the correctness and completeness of the parameters used in this design. The parameters recorded are relevant to both safety and price. For a calculation in case of incomplete data, standard parameters are initially assumed. These parameters must be checked immediately by the person responsible for construction, or the correct parameters are to be supplied subsequently.

Roof [Roof_1 (South)]

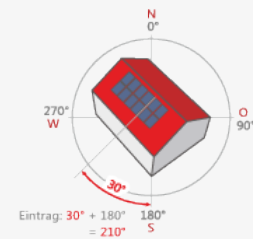
Ridge length a [m]	7.275
Width b [m]	5.5
Building height h [m]	3.96
Eaves length c [m]	7.275
Slope of roof [°]	10
Roofing	Tiled Roof
System alignment [°]	180

Shed roof



Roof pitch < 22°: Water-tight roof substructure required!

System alignment [°]*



Snow load was determined externally!

Snow load [kN/m²]*	1.6
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Wind load LST EN 1991-1-4:2005/NA:2012

Wind load [kN/m²]*:	0.646
Terrain Category:	2
Building height h [m]:	3.96
Reference Height [m]:	3.96
Wind zone (see wind zone map):	Area 1

PV-Module [Roof_1 (South)]

Manufacturer:	SoliTek cells
Name	Solid Solrif 108cell Glass/Glass 435W - Solrifi N
Width [mm]:	1160
Length (mm)	1767
Thickness [mm]:	17
Weight (kg)	27
Nominal Power [Watt]:	435
Module Type:	Monocrystalline
Temperature coefficient [%/°C]:	-0.3
Efficiency STC:	0.22
Output current MPP - STC [A]:	13.2
Output voltage MPP - STC [V]:	32.96
Short circuit current [A]:	13.8
Open circuit voltage [V]:	38.92
Temperature coefficient Current [%/K]:	0.045
Temperature coefficient Voltage [%/K]:	-0.25
Max. System voltage EU:	1000
Max module backcurrent [A]	22
Galvanic separation required:	No

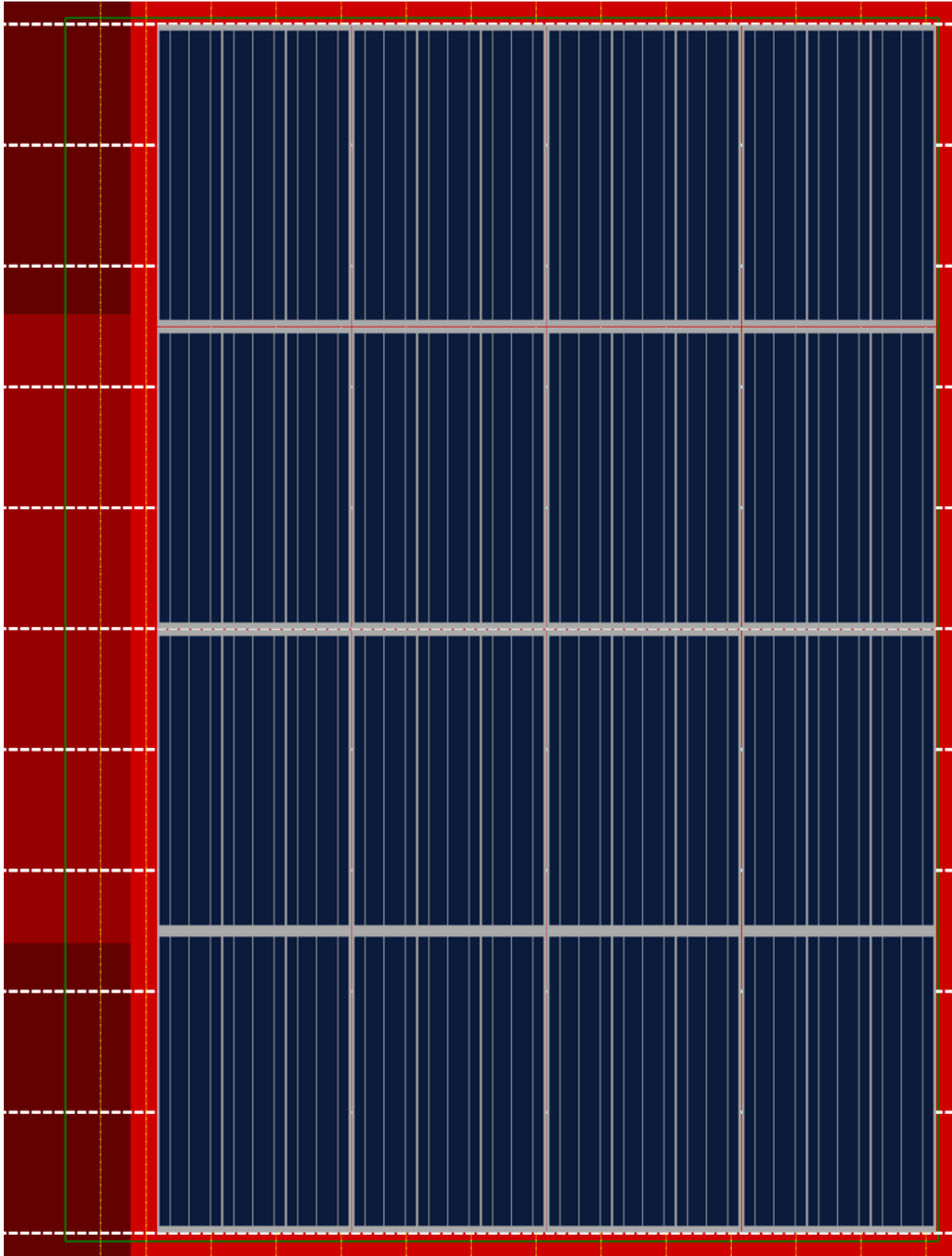
Anchor type & model [Roof_1 (South)]

Mounting system type	Solrif
Number of Fixations	72
Rail installation system	Roof integrated

Static details [Roof_1 (South)]

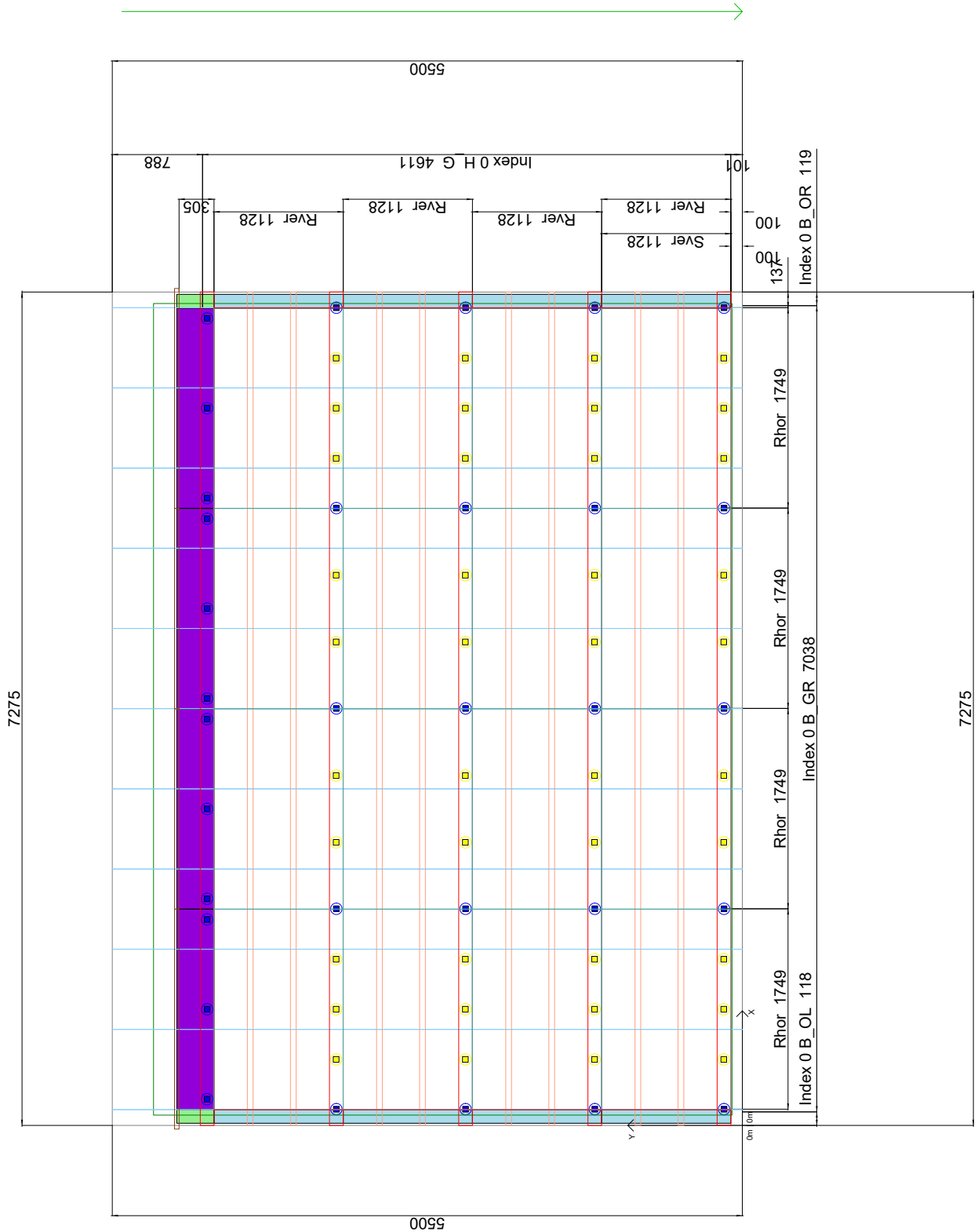
Allocated Area	31.57 m²
Load on Allocated Area	83.13 kN
Max. Pressure (design):	2.61 kN/m²
Max. Tension (design):	-1.2 kN/m²
Total System weight (incl. ballast)	889.76 kg
Pressure on allocated Area	0.28 lbf/in²
Validation of load-bearing capacity for the mounting system: <u>fulfilled</u>	

Position [Roof_1 (South)]



Be aware of the position of the junction box. It should not touch the supporting battens.

Installation-Plan [Roof_1 (South)]

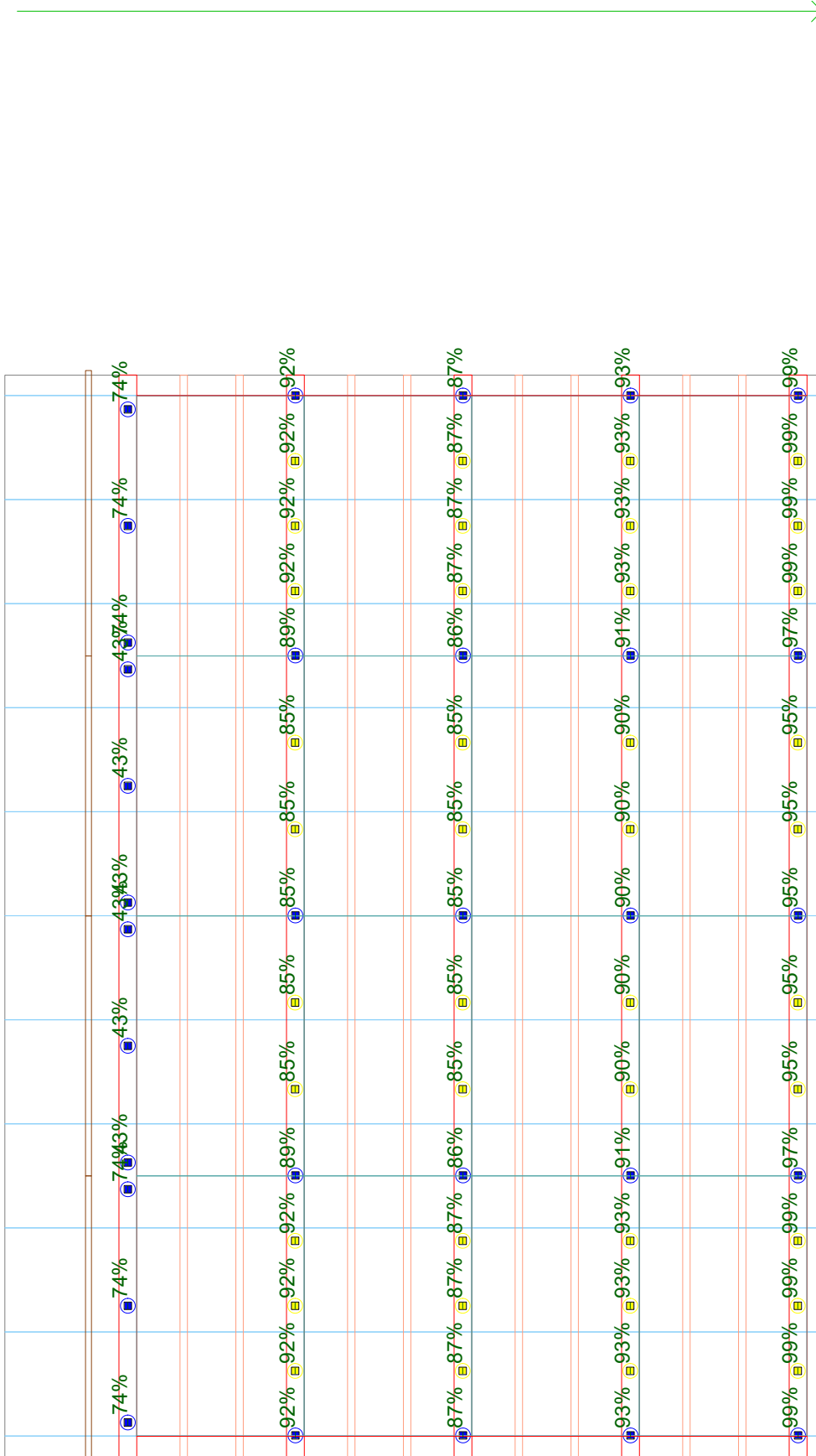


Rail capacity [Roof_1 (South)]

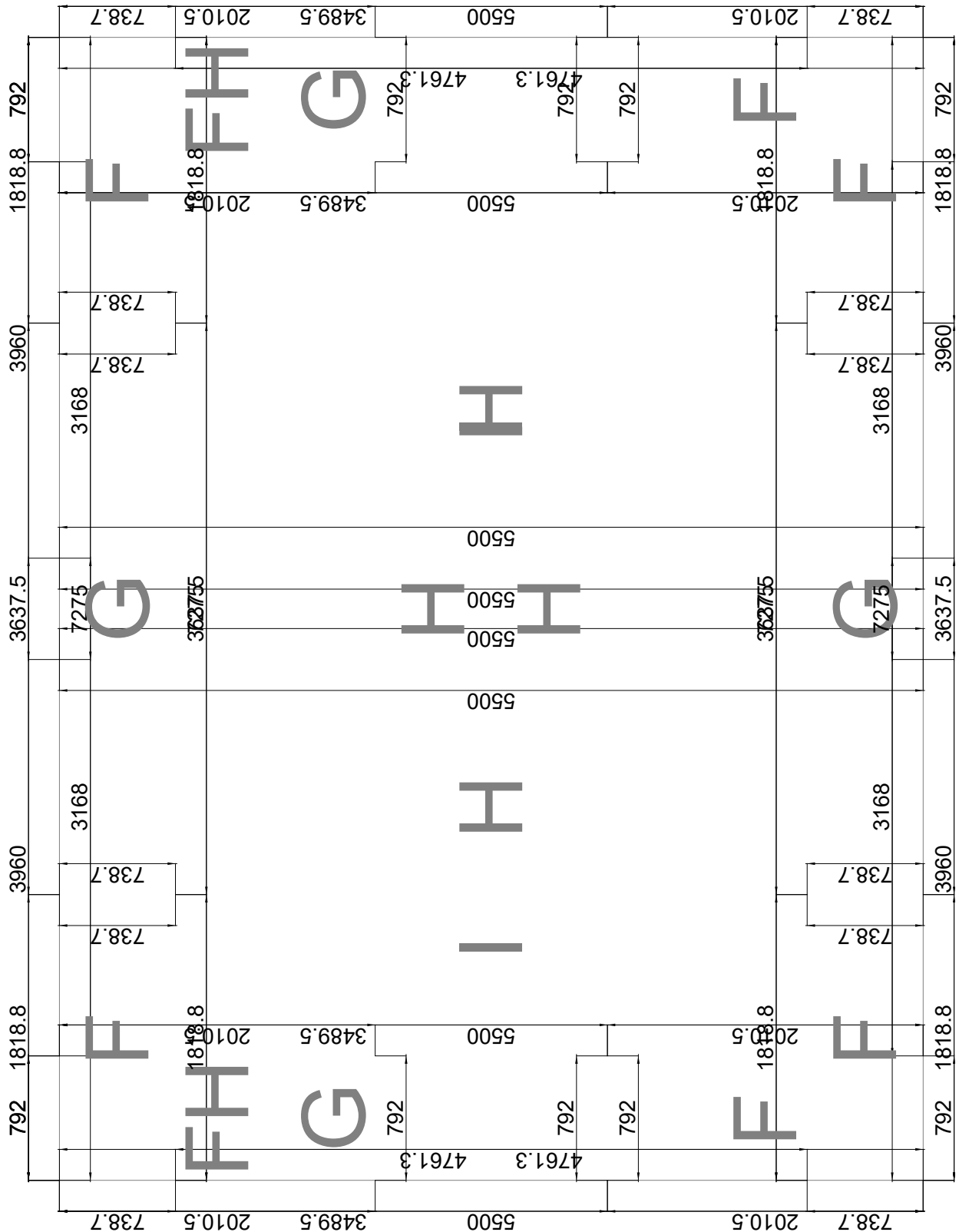
74%	74%	43%	43%	43%	43%	74%	74%
92%	92%	85%	85%	85%	85%	89%	92%
87%	87%	85%	85%	85%	85%	86%	87%
93%	93%	90%	90%	90%	90%	91%	93%
99%	99%	95%	95%	95%	95%	97%	99%

Be aware of the position of the junction box. It should not touch the supporting battens.

Static information: Utilised capacity of fasteners [Roof_1 (South)]



Static Information: Areas [Roof_1 (South)]



Be aware of the position of the junction box. It should not touch the supporting battens.

Material list [Roof_1 (South)]

Image	Part number	Description	Total Nr.	OutputStrings.AmountExactString	Total weight (kg)	Length (mm)	Total length (mm)
Mounting accessories							
	345N1160L	Aluminium flashing profile left 1160 mm Solrif N, RAL 9005	4	4	2.269	--	--
	346N1160L	Aluminium flashing profile right 1160 mm Solrif N, RAL 9005	4	4	2.306	--	--
	52010	Mounting Clamp Glass black	41	41	2.050	--	--
	06497	Mounting Clamp Profile black	33	33	1.617	--	--
	61831	Pan-Head Screw 4x35 T20, A2	154	154	0.462	--	--
Flashing							
	21523	Corner Flashing left RAL 9005	10	1	1.850	--	--
	21524	Corner Flashing right RAL 9005	10	1	1.850	--	--
	05483	Fixing for flashing	34	34	0.102	--	--
	03748	Roofing nail Ø2,5x25 galvanized	34	34	0.034	--	--
	21895	Side Flashing left 1150-1199 Ral 9005	4	4	2.196	--	--
	21897	Side Flashing right 1150-1199 RAL 9005	4	4	2.196	--	--
	21733	Top Flashing 1744 - 1794 RAL 9005	4	4	7.220	--	--
	21522	Top Flashing Joiner RAL 9005	10	3	1.460	--	--
	06736	Valley sealing strip 1000 x 30 x 40 mm, anthracite	8	8	0.144	--	--
Modules							
	Solid Solrif 108cell Glass/Glass 435W - Solrifi N	Solid Solrif 108cell Glass/Glass 435W - Solrifi N	16	16	432.000	--	--
					457.76		--

General specifications and notes

- Detailed information regarding intended use, maintenance and application limits can be found in the installation manual and must be observed.
- The customer must install the Solrif® modules in accordance with the applicable installation manual, standards and guidelines. The responsibility for correct installation lies solely with the customer.
- The customer must also observe the installation instructions of the PV module manufacturers and the safety and accident-prevention regulations.

Specifications for the input of data into the software

- Before entering in the project parameters, the customer must carefully check all underlying data at his responsibility and expense. In particular, he must verify the wind and snow load zones beforehand with the respective authorities. The project parameters must correspond exactly to the local conditions.
- Schweizer accepts no liability for any damage caused by incorrect or incomplete information or software entries made by the customer.

Requirements of the design results of the software

- The software computation does not take into account the often individual characteristics of a roof. It is therefore the customer's responsibility to have the design results checked and approved by an expert at his own expense.
- If additional forces other than own weight, wind and snow loads affecting the PV system exist, e.g. dynamic loads of the building envelope, seismic loads etc., a separate assessment of the situation must be conducted by an appropriately qualified consultant.
- The building statics are not part of the software calculation. The customer must therefore employ an appropriately qualified expert at his own expense to check the building statics and the suitability of the building for the installation of a photovoltaic system. Special care must be taken to ensure that point-loads that are generated by the photovoltaic substructure will be passed into the roof substructure.
- The PV module statics are not part of the software calculation. The design values of the impacts on the PV modules can be displayed in detail in the report. The customer is responsible for the suitability of the PV modules.

Calculation principles for structural safety analyses

- The basis of the structural design corresponds to the European standard EN 1990:2001 + A1:2005/AC:2010. National deviations from this European standard are not covered.
- The snow load complies with EN 1991-1-3:2003 + AC:2009. For many regions national annexes with zone maps etc. are available. The applicability of the characteristic loads must be checked by the customer regarding the specific construction project.
- The wind load complies with EN 1991-1-4:2005 + A1:2010 + AC:2010. For many regions national annexes with zone maps etc. are available. The applicability of the characteristic loads must be checked by the customer regarding the specific construction project.