ValkPVplanner

Project report

Van der Valk Solar Systems
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Project name	: Tile Energy - Glebe Rd
Date (modified)	: 23-07-2020
Time (modified)	: 11:58
Company	: Van der Valk Solar Systems
User	: Chris Campbell
Version ValkPVplanner	: 2.15.0

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Location information

Project	: Tile Energy - Glebe Rd
Project location	: 8 Glebe Rd, Uxbridge UB8 2RD, UK
Terrain category	: Country
High neighbouring	: No
Wind area	: 22 m/s
Snow zone	: 0.5 kN/m²
Altitude above sea	: 32 m
Distance to shore line	: 70 km
Peak wind pressure	: 669,34 N/m²

Project overview

Building	No. of PV-panels	Power [kWp]	System type	Weight of mounting system [kg]	No. of FULL tiles*	No. of HALF tiles**	Weight of ballast [kg]
Building 1	**4**	**1,36**		**58**	**23**	**3**	**221**
Building 1 - Area 1 - Default Subarea 1	4	1,36	ValkPro+	58	23	3	221
Total project	**4**	**1,36**		**58**	**23**	**3**	**221**

Tiles are included for all flat roof systems selected in this project.

Notes: The results in this project report can be based on default values. Please check if all values are correct.

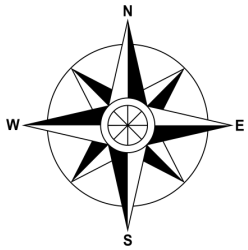
Bill of Materials - Total project

Article no.	Description	Package Qty.	Building 1	Total
729622	Rubber tile carrier - click - ValkPro+	35	12	12
741801500	Galv roof carrier 1500x1,5mm	100	6	6
7506301545G	Tile 30x15x4,5cm - 4,5kg - UK	104	3	3
7506303045G	Tile 30x30x4,5cm - 9kg - UK	52	23	23
774221	Ss hammerhead bolt M8x20mm + lock nut	100	3	3
724650	Alu rear foot ValkPro+ middle	25	2	2
724651	Alu rear foot ValkPro+ side	25	4	4
724660	Alu front foot ValkPro+ P/L10° middle	25	2	2
724661	Alu front foot ValkPro+ P/L10° side	25	4	4
742510	Galv back plate ValkPro+ L10° L=1780mm	100	4	4
742550	Galv mass carrier ValkPro+ L1779mm	100	8	8
773320	Ss thread-forming bolt M6x20mm - T30	100	18	18
742540	Galv side plate ValkPro+ L10° universal	100	4	4

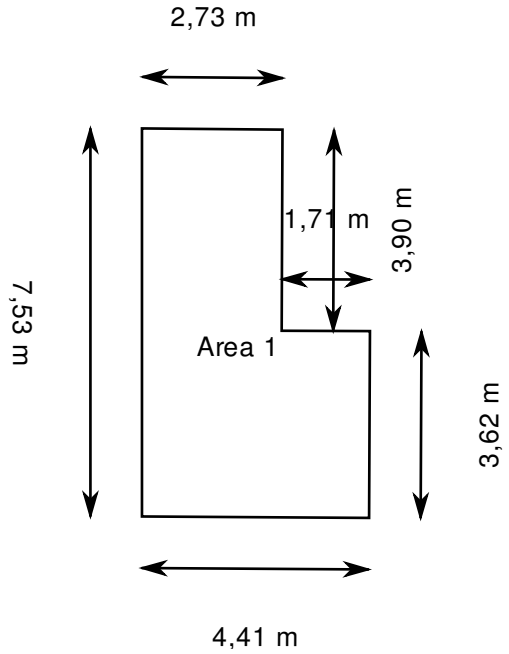
The bill of materials shown on this page, refer to the materials needed for the total project.
The Bill of Materials per individual roof area can be found in the dedicated chapters of this user manual.

Drawing total project

This drawing shows all the buildings of the total project including the different roof areas.



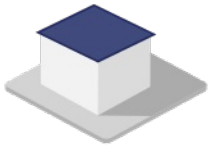
Building 1



Building information

Building name	: Building 1
Ridge height	: 7,10 m

Roof information



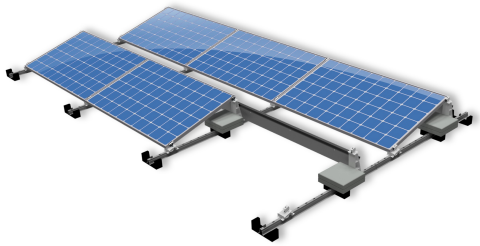
Roof type	: Flat
Roof material	: Bitumen
Gravel present	: No
Roof friction coefficient	: 0.6

System information

No. of panels south wall	: 4
Module	: JA 340* 1.689 x 0.996 x 0.035
Panel weight	: 18,70 Kg
Module orientation	: Landscape
Edge zone calculated	: 1,42 m
Edge zone adjusted	: 0,00 m
System choice	: ValkPro+
System colour	: Aluminium
Panel inclination	: 10
Azimuth	: -180
Foundation type	: Tile carrier
Include side plate	: No

System type

ValkPro+



Weight information

Weight of panels	:	74,80 kg
Weight of mounting system	:	57,86 kg
Weight of ballast	:	220,50 kg
Total weight	:	353,16 kg

System dimensions

Subarea dimensions	:	26,59 m²
System dimensions	:	10,20 m²

Roof loadings

Roof load based on subarea dimension	:	13,28 kg/m² (130,28 N/m²)
Roof load based on system dimension	:	34,62 kg/m² (339,66 N/m²)
Point load max. (max. ballasted points)	:	44 kPa (0,044 N/mm²)
Point load min. (min. ballasted points)	:	37 kPa (0,037 N/mm²)

Option to reduce point load of max ballasted point

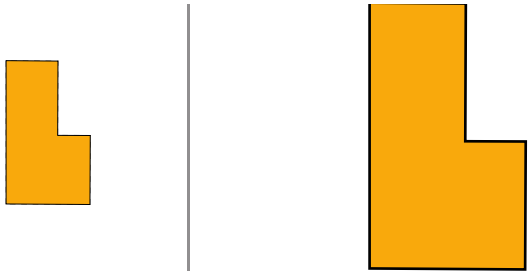
For projects where it is required to keep the point load to a minimum, there is the option to add load distributors for additional support of the ballasted points.
The following reduction of point load can be achieved:

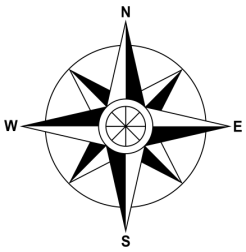
Point load reduction of the ValkPro+ system per ballast point		
Number of rubber load distributors per ballast point	Reduction of point load for ValkPro+ South	Reduction of point load for ValkPro+ East-West
0	0%	0%
1	71%	55%
2	73%	71%
3	88%	78%

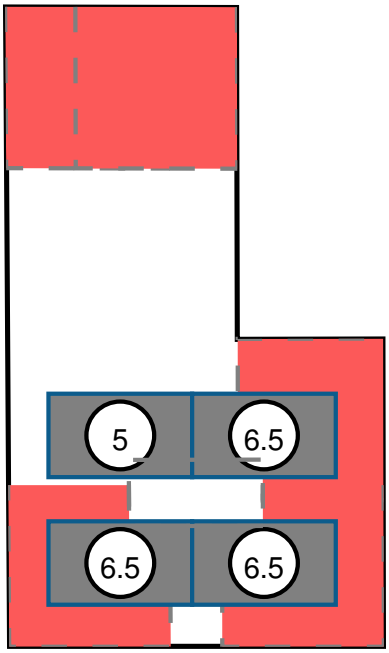
The load distributors can be ordered using the following codes:
729630 for standard roofs
729631 for PVC roof membrane

The bill of materials shown in this page apply to materials needed for Building 1 - Area 1 - Default Subarea 1

Article no.	Description	Package Qty.	Calc. Qty.	Extra Qty.	Total Qty.	Total weight
729622	Rubber tile carrier - click - ValkPro+	35	12	0	12	7,68
741801500	Galv roof carrier 1500x1,5mm	100	6	0	6	15,42
7506301545G	Tile 30x15x4,5cm - 4,5kg - UK	104	3	0	3	13,50
7506303045G	Tile 30x30x4,5cm - 9kg - UK	52	23	0	23	207,00
774221	Ss hammerhead bolt M8x20mm + lock nut	100	3	0	3	0,08
724650	Alu rear foot ValkPro+ middle	25	2	0	2	0,83
724651	Alu rear foot ValkPro+ side	25	4	0	4	1,76
724660	Alu front foot ValkPro+ P/L10° middle	25	2	0	2	0,50
724661	Alu front foot ValkPro+ P/L10° side	25	4	0	4	1,10
742510	Galv back plate ValkPro+ L10° L=1780mm	100	4	0	4	8,60
742550	Galv mass carrier ValkPro+ L1779mm	100	8	0	8	17,51
773320	Ss thread-forming bolt M6x20mm - T30	100	18	0	18	0,11
742540	Galv side plate ValkPro+ L10° universal	100	4	0	4	4,28
Total weight						**278,36 kg**







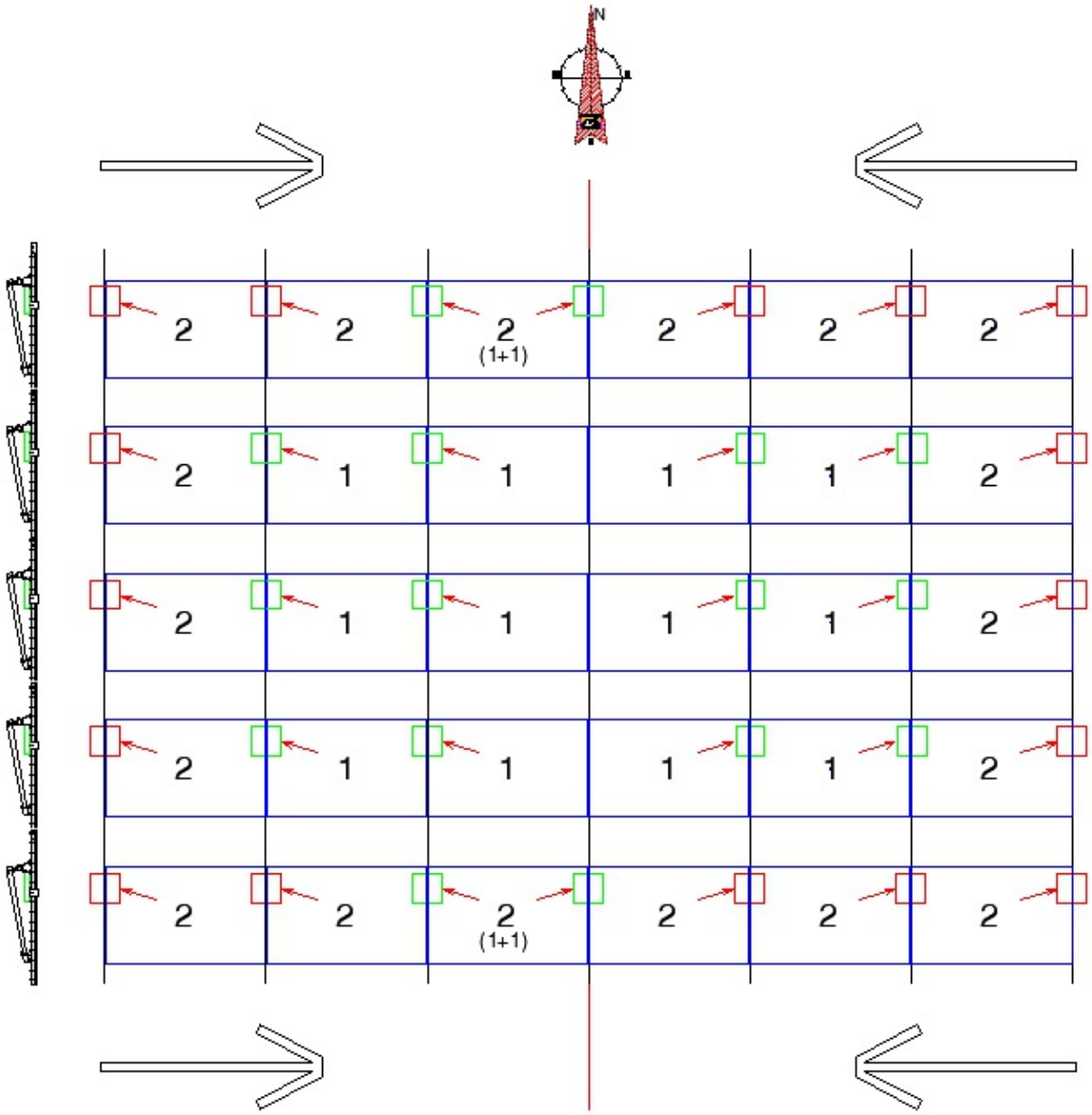
X	Panels with mass carriers Number represents FULL tiles.	
X	Panels with side plates and mass carriers Number represents FULL tiles.	
X	Panels with side plates Number represents HALF tiles. Use HALF tiles only.	
1 Tile = 30 x 30 x 4,5 cm | 9 kg 0,5 Tile = 30 x 15 x 4,5 | 4,5 kg		

Edge zone calculated: 1,42 m

Edge zone adjusted: 0,00 m

Dilatation line

Attention! When placing ballast: work from the outside edge of a row towards the centre. It is possible for one roof carrier in the middle of the row to have no ballast on it.



Placing ballast:

- Always work from the sides of the system inwards to the centre, when placing ballast (see arrows)
- In the centre row of the system (East to West), there is always one position without ballast (see red line)
- On this row, the ballast can be spread over the different positions (if possible)

Regulations

All solar mounting systems of Van der Valk Solar Systems have been designed, calculated and manufactured according to Eurocodes and NEN 7250 regulations and its derivatives (listed below). These regulations have been used for the calculations in the Project Report. Van der Valk Solar Systems meets the applicable CE requirements regarding 2001/95/EG product safety and the applicable sections of BRL9931, components for solar systems. Van der Valk Solar Systems pitched roof clamp systems are MCS012 approved (MCS BBA 0159).

- **EN 1990 Base of Structural design**
  National Annexes:
  - BS EN 1990:2002+A1:2005
  - DIN EN 1990/NA/A1
  - IS-EN 1990:2002+A1:2005
  - NBN EN 1990 ANB
  - NEN-EN 1990+A1+A1/C2/NB
  - NS-EN 1990:2002/NA:2008+A1:2010
  - PN-EN 1990:2004/NA
  - SFS-EN 1990/A1/AC
  - SS-EN 1990/A1:2005/AC:2010
- **EN 1991-1-3 Actions on structures / Snow load**
  National Annexes:
  - BS-EN 1990-1-3:2003
  - DIN EN 1991-1-3/NA
  - IS-EN 1991-1-3:2003
  - NBN EN 1991-1-3 ANB
  - NEN-EN 1991-1-3:2003
  - NS-EN 1991-1-3:2003/NA:2008
  - PN-EN 1991-1-3:2005/NA
  - SFS-EN 1991-1-3/AC
  - SS-EN 1991-1-3/A1:2015
- **EN 1991-1-4 Actions on structures / Wind load**
  National Annexes:
  - BS EN 1991-1-4:2005+A1:2010
  - DIN EN 1991-1-4/NA
  - IS-EN 1991-1-4:2005/NA:2013
  - NBN EN 1991-1-4 ANB
  - NEN-EN 1991-1-4:2005
  - NS-EN 1991-1-4:2005/NA:2009
  - PN-EN 1991-1-4:2008/NA
  - SFS-EN 1991-1-4+AC+A1
  - SS-EN 1991-1-4:2005/AC:2010
- **EN 1993-1-1 Design of steel structures / Rules for buildings**
- **N 1993-1-3 Design of steel structures / Rules for cold formed members**
- **EN 1997 Geotechnical design**
- **EN 1998-1 Design of structures / Seismic actions**
- **EN 1999-1-1 Design of aluminium structures**
- **NEN 7250 Solar systems - Integration in roofs and facades**
- **2001/95/EG Product safety**
- **BRL9931 Components of solar systems**

Wind tunnel testing

Van der Valk Solar Systems have elaborated the results of wind tunnel studies in the product design and calculation tools for both flat and pitched roofs. The application and interpretation of the results have been checked thoroughly and match the assumption and findings as laid down in reports W15328-1ERA-002 (dated December 5th, 2016), W15328-2ERA-007 (dated September 9th, 2018) and W15328-3E-RA-003 (dated June 13th, 2018) for flat roofs and WA 15328-!E-RA-002 (dated December 22nd, 2016) for pitched roofs.

Default values

- This project report is based on the input and results of the online calculation tool ValkPVplanner. The results derived from this tool were calculated with the greatest possible care. Nonetheless, it is possible that some information might not be entirely correct as the results for each project report can be based on default values. Please check carefully if all values are correct.

Safety instructions

- This ValkPVplanner project report is complementary to the Valk Solar Systems installation manuals, which show how to install the Van der Valk solar mounting system.
- The instructions provided in this ValkPVplanner project report must be observed at all times.
- All structural, safety and building regulations currently applicable must be observed.
- Solar mounting systems installed on roofs can be exposed to wind and snow conditions. This will result in additional pressure load of the installed PV system on the roof and building. A design calculation must be used to establish whether or not the roof and building, will be able to withstand the extra pressure load. Where necessary, modifications need to be made.
- To prevent flat roof systems from moving, lift or tip over, the system needs to be either fixed to the roof or weighed-up by ballast. The ballast calculated in this project report is of critical importance to ensure that the mounting system can be placed and used safely on the roof(s) in subject for this project report.
- Flat roof systems placed on a roof with an inclination of 5 degrees or more must be fixed to the roof.
- Restrictions apply for the position of the solar system on a roof. The solar panels must be placed at a the recommended distance from the roof edge, as shown in this project report.

Warranty

- Standard warranty for pitched roof, flat roof and ground mount systems is 10 years. This can be extended under certain conditions.
- The warranty provided is subject to the warranty conditions stated in the general terms and conditions supplied by Van der Solar Systems BV. Our terms and conditions can be found on our website: www.valksolarsystems.nl.

Disclaimer

- Van der Valk Solar Systems B.V. does not accept any liability for any direct and/or indirect consequences of any act (or omission) ensuing from the information or the failure to observe the instructions provided in this project report and the installation manual, nor for possible incorrect use of the ValkPVplanner by the customer.
- The calculations do not take into account obstacles in the near surrounding like high buildings, cliffs and mountains.
- For the full disclaimer of the ValkPVplanner, please visit our website.: www.valksolarsystems.nl.

Contact

- If you have any questions about the ValkPVplanner, calculation results or this project report: please contact the Van der Valk Solar Systems team.