ValkPVplanner

Project report

Solstice Energy Ltd
Little Willow, Upper Anstey Lane
Alton
United Kingdom of Great Britain and Northern Ireland
www.solsticeenergy.co.uk

Project name	: CAST4333.01
Date (modified)	: 11-04-2019
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Company	: Solstice Energy Ltd
User	: Robert Banford
Version ValkPVplanner	: 2.7.1 *(Simple Mode)*

The Netherlands
Zwartendijk 73
2681LP MONSTER
The Netherlands
T. +31 (0)174 21 22 23
info@valksolarsystems.nl
www.valksolarsystems.nl

United Kingdom + Ireland
Innovation House, Innovation Way
Discovery Park, Sandwich CT13 9FF
United Kingdom
T. +44 (0)1304 897658
info@valksolarsystems.nl
www.valksolarsystems.nl

International
Zwartendijk 73
2681LP MONSTER
The Netherlands
T +31 (0)174 21 22 23
info@valksolarsystems.nl
www.valksolarsystems.nl

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Location information

Project	: CAST4333.01
Project location	: New Oxford St, London WC1A 1DG, UK
Terrain category	: Town
High neighbouring	: Yes
Wind area	: 22 m/s
Snow zone	: 0.5 kN/m²
Altitude above sea	: 27 m
Distance to shore line	: 45 km
Distance to edge of the city	: 25 km
Peak wind pressure	: 737,03 N/m²

Project overview

Building	No. of panels	Power [kWp]	System type	Weight of mounting system [kg]	No. of FULL tiles*	No. of HALF tiles**	Weight of ballast [kg]
Building 1	**64**	**18,24**		**554**	**56**	**36**	**666**
Building 1 - Area 1 - Default Subarea 1	64	18,24	ValkPro+	554	56	36	666

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

Careful: This project is done in simple mode, so all panels are considered to be in the middle zone

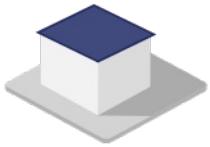
Careful, the building is surrounded by higher neighbouring structures. This can affect the result of the ValkPVplanner, please contact Van der Valk for a possible solution.

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

Building information

Building name	: Building 1
Gutter height	: 25,00 m

Roof information



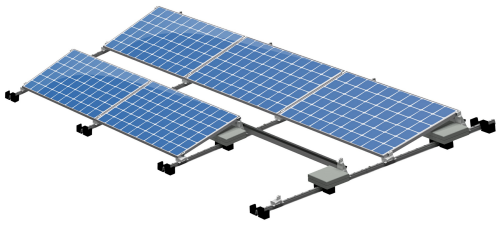
Roof type	: Flat
Roof material	: Bitumen
Gravel present	: No
Roof friction coefficient	: 0.6

System information

No. of panels south wall	: 64
Module	: JA Solar 285Wp - Half-cell 1.678 x 0.991 x 0.035
Panel weight	: 18,00 Kg
Module orientation	: Landscape
Edge zone calculated	: 5 m
System choice	: ValkPro+
System colour	: Aluminium
Panel inclination	: 10
Foundation type	: Tile carrier
Include side panel	: Yes

System type

ValkPro+



Weight information

Weight of panels	:	1.152,00 kg
Weight of mounting system	:	553,21 kg
Weight of ballast	:	666,00 kg
Total weight	:	2.371,21 kg

System dimensions

System dimensions	:	162,14 m²

Roof loadings

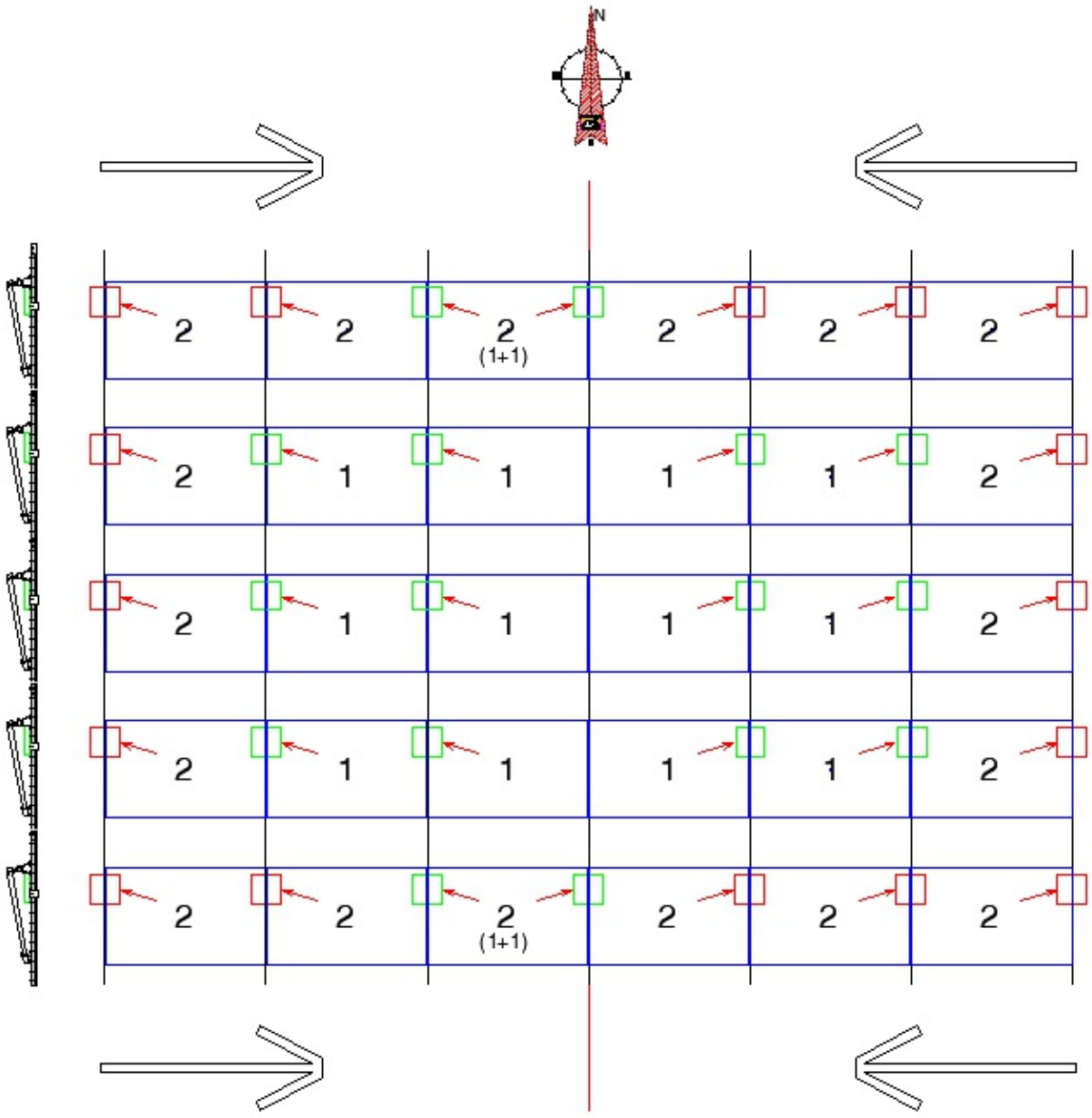
Roof load based on system dimension	:	14,62 kg/m² (143,46 N/m²)
Point load max. (max. ballasted points)	:	25 kPa (0,025 N/mm²)
Point load min. (min. ballasted points)	:	17 kPa (0,017 N/mm²)

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	90	0	90	57,60
741801500	Galv roof carrier 1500x1,5mm	100	72	0	72	185,04
7506301545G	Tile 30x15x4,5cm - 4,5kg - UK	104	36	0	36	162,00
7506303045G	Tile 30x30x4,5cm - 9kg - UK	52	56	0	56	504,00
774221	Ss hammerhead bolt M8x20mm + lock nut	100	63	0	63	1,64
724650	Alu rear foot ValkPro+ middle	25	56	0	56	23,13
724651	Alu rear foot ValkPro+ side	25	16	0	16	7,06
724660	Alu front foot ValkPro+ middle	25	56	0	56	13,89
724661	Alu front foot ValkPro+ side	25	16	0	16	4,40
742510	Galv back panel ValkPro+ L1780mm	50	64	0	64	169,02
742550	Galv mass carrier ValkPro+ L1779mm	100	32	0	32	69,76
773320	Ss thread-forming bolt M6x20mm - T30	100	120	0	120	0,72
742531	Galv side panel right ValkPro+	100	8	0	8	10,48
742530	Galv side panel left ValkPro+	100	8	0	8	10,48
Total weight						**1.219,21 kg**

2	2	2	2	2	2	2	2
2	0.5	0.5	0.5	0.5	0.5	0.5	2
2	0.5	0.5	0.5	0.5	0.5	0.5	2
2	0.5	0.5	0.5	0.5	0.5	0.5	2
2	0.5	0.5	0.5	0.5	0.5	0.5	2
2	0.5	0.5	0.5	0.5	0.5	0.5	2
2	0.5	0.5	0.5	0.5	0.5	0.5	2
2	2	2	2	2	2	2	2

X	Panels with mass carriers Number represents FULL tiles.	
X	Panels with side panels and mass carriers Number represents FULL tiles.	
X	Panels with side panels 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		



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 report W 15328-1ERA-002 dated December 5th, 2016 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.