

# ValkPVplanner

## Project report



UT Power

<b>Project name</b>	: International Hall
<b>Date(modified)</b>	: 04-10-2018
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<b>Company</b>	: UT Power
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## ► Location information

Project	: International Hall
Project location	: Lansdowne Terrace, Bloomsbury, London WC1N 1DJ, UK
Terrain category	: Town
High neighbouring	: no
Wind area	: 22 m/s
Snow zone	: 0.5kN/m <sup>2</sup>
Altitude above sea	: 22 m
Distance to shore	: 40 km
Distance to edge of the city	: 9 km

## ► Project overview

Building	No. of Power panels [kWp]		System type	No. of tiles (30x30x4,5cm; 9 kg)*	No. of tiles (30x15x4,5cm; 4,5 kg)*	weight of mounting system [kg]	Weight of the ballast [kg]
60s Section	78	21,06				1.226	1.985
60s Section - Area 1 - Default Subarea 1	78	21,06	ValkPro+	185	71	1.226	1.985
Higher Section	24	6,48				288	743
Higher Section - Area 1 - Default Subarea 1	24	6,48	ValkPro+	75	15	288	743
New Section	56	15,12				744	1.260
New Section - Area 1 - Default Subarea 1	56	15,12	ValkPro+	112	56	744	1.260
<b>Total project</b>	<b>158</b>	<b>42,66</b>		<b>372</b>	<b>142</b>	<b>1033.226</b>	<b>746.245</b>

Tiles are included in all flat roof systems for this project

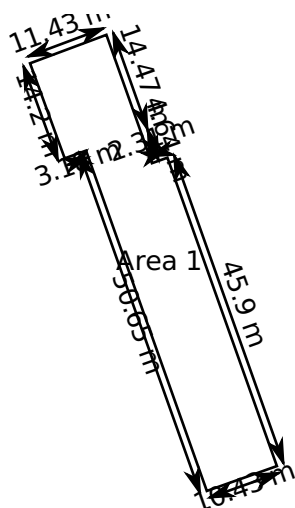
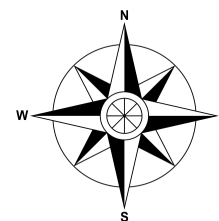
**Note:** the results in this project report can be based on default values. So please check if all values are correct.

Article no.	Description	Package Qty.	60s Section	Higher Section	New Section	Total
729625	Rubber tile carrier 250x75x90mm for ValkPro+	25	158	63	105	326
741801500	Galv roof carrier L=1500x1,5mm + coupling 87mm	100	130	31	79	240
7506301545G	Tile 30 x 15 x 4,5cm - 4,5kg - English stock	120	71	15	56	142
7506303045G	Tile 30 x 30 x 4,5cm - 9kg - English stock	60	185	75	112	372
774221	Ss hammerhead bolt M8x20mm + washer + lock nut	100	155	27	94	276
724650	Alu rear foot ValkPro+ middle	25	26	17	33	76
724651	Alu rear foot ValkPro+ side	25	104	14	46	164
724660	Alu front foot ValkPro+ middle	25	26	17	33	76
724661	Alu front foot ValkPro+ side	25	104	14	46	164
742510	Galv back panel ValkPro+ L=1760mm (panel length 1559-1700mm)	50	78	24	56	158
742550	Galv mass carrier ValkPro+ L=1759mm (panel length 1559-1700mm)	100	156	30	92	278
773320	Ss thread-forming bolt M6x20mm - T30	100	442	61	217	720
742531	Galv side panel right ValkPro+	100	52	5	23	80
742530	Galv side panel left ValkPro+	100	52	5	23	80

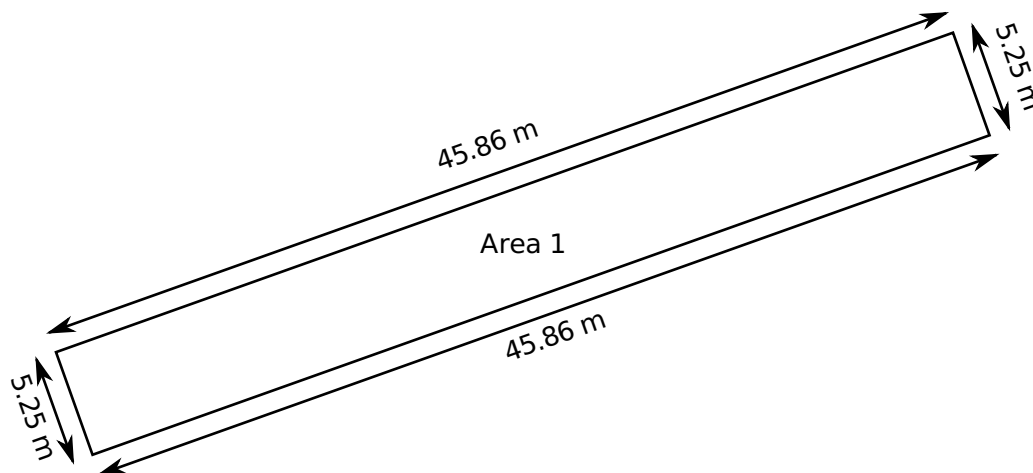
The bill of materials shown in this page apply to materials needed for the total project and is also divided per building. The bill of materials per roof area(s) can be found in the different chapters of this user manual.

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

## ► 60s Section

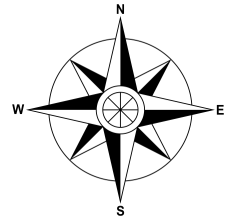
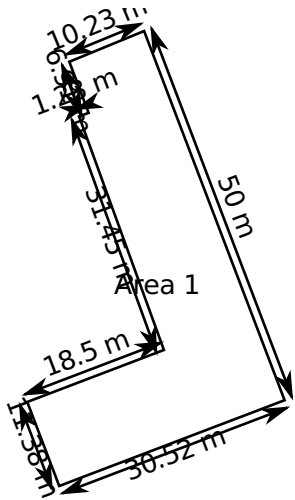


## ► Higher Section



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

## ► New Section



### ► Building information

Building name : 60s Section  
Gutter height : 17,00 m

### ► Roof information

Roof type : Flat  
Roof material : Bitumen  
Gravel present : No

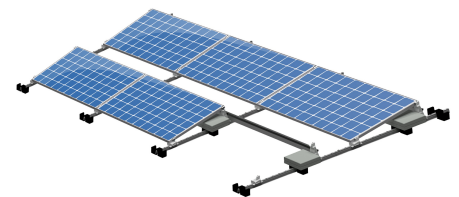
### ► System information

No. of panels south wall : 78  
Module : BYD Poly 270 1.645 x 0.992 x 0.035  
Panel weight : 18,70 Kg  
Module orientation : Landscape  
Edge zone calculated : 3,40 m  
Edge zone adjusted : 0,00 m  
System choice : valkPro+  
System color : aluminium  
Panel inclination : 10  
Azimuth : 160  
Foundation type : tileCarrier  
Include side panel : Yes



### ► System type

ValkPro+



## ► Weight information

Weight of panels	: 1.458,60 kg
Weight of mounting system	: 1.225,35 kg
Weight of ballast	: 1.984,50 kg
Total weight	: 4.668,45 kg
Subarea dimension	: 679,48 m <sup>2</sup>
System dimension	: 195,41 m <sup>2</sup>

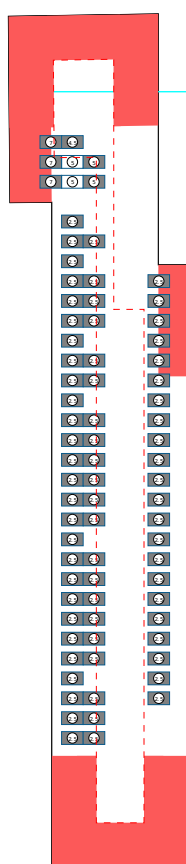
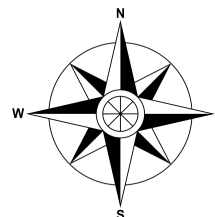
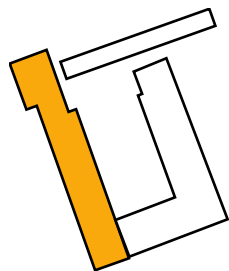
## ► Roof loadings

Roof load based on subarea dimension	: 6,87 kg/m <sup>2</sup>
Roof load based on system dimension	: 23,89 kg/m <sup>2</sup>
Point load max (max ballasted points)	: 50 kPa
Point load min (min ballasted points)	: 26 kPa



The bill of materials shown in this page apply to materials needed for 60s Section - Area 1 - Default Subarea 1

Article no.	Description	Pack qty.	Calc qty.	Extra qty.	Total qty.	Total weight
729625	Rubber tile carrier 250x75x90mm for ValkPro+	25	158	0	158	110,60
741801500	Galv roof carrier L=1500x1,5mm + coupling 87mm	100	130	0	130	334,10
7506301545G	Tile 30 x 15 x 4,5cm - 4,5kg - English stock	120	71	0	71	319,50
7506303045G	Tile 30 x 30 x 4,5cm - 9kg - English stock	60	185	0	185	1.665,00
774221	Ss hammerhead bolt M8x20mm + washer + lock nut	100	155	0	155	4,03
724650	Alu rear foot ValkPro+ middle	25	26	0	26	10,74
724651	Alu rear foot ValkPro+ side	25	104	0	104	45,86
724660	Alu front foot ValkPro+ middle	25	26	0	26	6,45
724661	Alu front foot ValkPro+ side	25	104	0	104	28,60
742510	Galv back panel ValkPro+ L=1760mm (panel length 1559-1700mm)	50	78	0	78	206,00
742550	Galv mass carrier ValkPro+ L=1759mm (panel length 1559-1700mm)	100	156	0	156	340,08
773320	Ss thread-forming bolt M6x20mm - T30	100	442	0	442	2,65
742531	Galv side panel right ValkPro+	100	52	0	52	68,12
742530	Galv side panel left ValkPro+	100	52	0	52	68,12
<b>Total Weight</b>						<b>3.209,85 kg</b>



No. of tiles	Type of foundation
(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

--- Edge zone calculated: 3,40 m

█ Edge zone adjusted: 0,00 m

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

### ► Building information

Building name : Higher Section  
Gutter height : 19,00 m

### ► Roof information

Roof type : Flat  
Roof material : Bitumen  
Gravel present : No

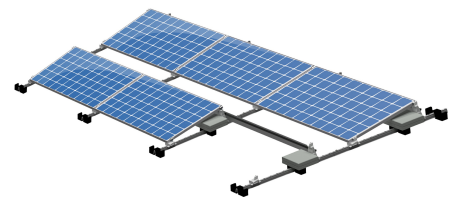
### ► System information

No. of panels south wall : 24  
Module : BYD Poly 270 1.645 x 0.992 x 0.035  
Panel weight : 18,70 Kg  
Module orientation : Landscape  
Edge zone calculated : 3,80 m  
Edge zone adjusted : 0,00 m  
System choice : valkPro+  
System color : aluminium  
Panel inclination : 10  
Azimuth : 160  
Foundation type : tileCarrier  
Include side panel : Yes



### ► System type

ValkPro+



### ► Weight information

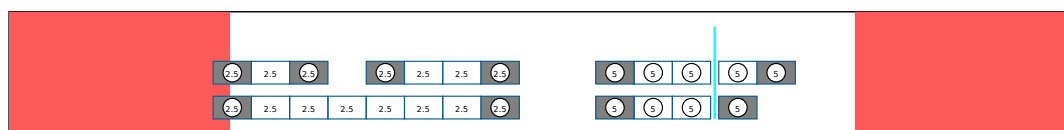
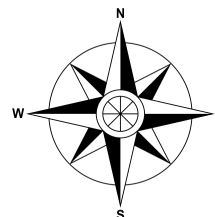
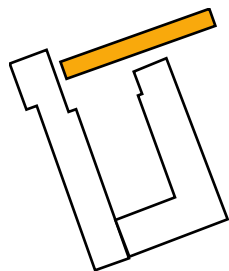
Weight of panels	: 448,80 kg
Weight of mounting system	: 287,98 kg
Weight of ballast	: 742,50 kg
Total weight	: 1.479,28 kg
Subarea dimension	: 240,54 m <sup>2</sup>
System dimension	: 59,62 m <sup>2</sup>

### ► Roof loadings

Roof load based on subarea dimension	: 6,15 kg/m <sup>2</sup>
Roof load based on system dimension	: 24,81 kg/m <sup>2</sup>
Point load max (max ballasted points)	: 40 kPa
Point load min (min ballasted points)	: 26 kPa

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

Article no.	Description	Pack qty.	Calc qty.	Extra qty.	Total qty.	Total weight
729625	Rubber tile carrier 250x75x90mm for ValkPro+	25	63	0	63	44,10
741801500	Galv roof carrier L=1500x1,5mm + coupling 87mm	100	31	0	31	79,67
7506301545G	Tile 30 x 15 x 4,5cm - 4,5kg - English stock	120	15	0	15	67,50
7506303045G	Tile 30 x 30 x 4,5cm - 9kg - English stock	60	75	0	75	675,00
774221	Ss hammerhead bolt M8x20mm + washer + lock nut	100	27	0	27	0,70
724650	Alu rear foot ValkPro+ middle	25	17	0	17	7,02
724651	Alu rear foot ValkPro+ side	25	14	0	14	6,17
724660	Alu front foot ValkPro+ middle	25	17	0	17	4,22
724661	Alu front foot ValkPro+ side	25	14	0	14	3,85
742510	Galv back panel ValkPro+ L=1760mm (panel length 1559-1700mm)	50	24	0	24	63,38
742550	Galv mass carrier ValkPro+ L=1759mm (panel length 1559-1700mm)	100	30	0	30	65,40
773320	Ss thread-forming bolt M6x20mm - T30	100	61	0	61	0,37
742531	Galv side panel right ValkPro+	100	5	0	5	6,55
742530	Galv side panel left ValkPro+	100	5	0	5	6,55
<b>Total Weight</b>						<b>1.030,48 kg</b>



No. of tiles	Type of foundation
(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

--- Edge zone calculated: 3,80 m

█ Edge zone adjusted: 0,00 m

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

### ► Building information

Building name : New Section  
Gutter height : 17,00 m

### ► Roof information

Roof type : Flat  
Roof material : Bitumen  
Gravel present : No

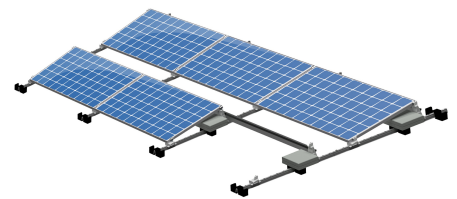
### ► System information

No. of panels south wall : 56  
Module : BYD Poly 270 1.645 x 0.992 x 0.035  
Panel weight : 18,70 Kg  
Module orientation : Landscape  
Edge zone calculated : 3,40 m  
Edge zone adjusted : 0,00 m  
System choice : valkPro+  
System color : aluminium  
Panel inclination : 10  
Azimuth : 159  
Foundation type : tileCarrier  
Include side panel : Yes



### ► System type

ValkPro+



▶ **Weight information**

Weight of panels	: 1.047,20 kg
Weight of mounting system	: 743,74 kg
Weight of ballast	: 1.260,00 kg
Total weight	: 3.050,94 kg
Subarea dimension	: 789,64 m <sup>2</sup>
System dimension	: 139,10 m <sup>2</sup>

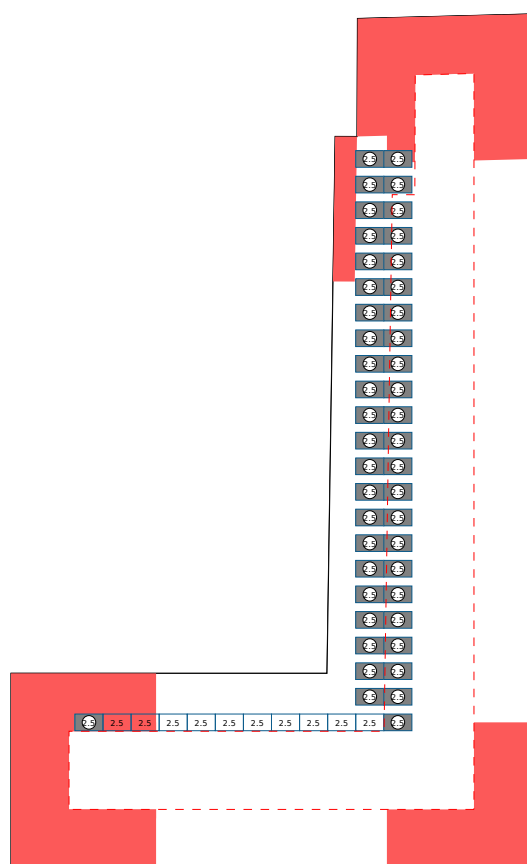
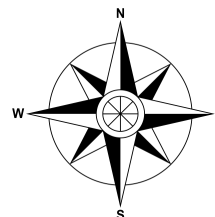
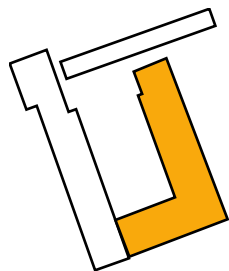
▶ **Roof loadings**

Roof load based on subarea dimension	: 3,86 kg/m <sup>2</sup>
Roof load based on system dimension	: 21,93 kg/m <sup>2</sup>
Point load max (max ballasted points)	: 26 kPa
Point load min (min ballasted points)	: 26 kPa



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

Article no.	Description	Pack qty.	Calc qty.	Extra qty.	Total qty.	Total weight
729625	Rubber tile carrier 250x75x90mm for ValkPro+	25	105	0	105	73,50
741801500	Galv roof carrier L=1500x1,5mm + coupling 87mm	100	79	0	79	203,03
7506301545G	Tile 30 x 15 x 4,5cm - 4,5kg - English stock	120	56	0	56	252,00
7506303045G	Tile 30 x 30 x 4,5cm - 9kg - English stock	60	112	0	112	1.008,00
774221	Ss hammerhead bolt M8x20mm + washer + lock nut	100	94	0	94	2,44
724650	Alu rear foot ValkPro+ middle	25	33	0	33	13,63
724651	Alu rear foot ValkPro+ side	25	46	0	46	20,29
724660	Alu front foot ValkPro+ middle	25	33	0	33	8,18
724661	Alu front foot ValkPro+ side	25	46	0	46	12,65
742510	Galv back panel ValkPro+ L=1760mm (panel length 1559-1700mm)	50	56	0	56	147,90
742550	Galv mass carrier ValkPro+ L=1759mm (panel length 1559-1700mm)	100	92	0	92	200,56
773320	Ss thread-forming bolt M6x20mm - T30	100	217	0	217	1,30
742531	Galv side panel right ValkPro+	100	23	0	23	30,13
742530	Galv side panel left ValkPro+	100	23	0	23	30,13
<b>Total Weight</b>						<b>2.003,74 kg</b>



No. of tiles	Type of foundation
(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

--- Edge zone calculated: 3,40 m

█ Edge zone adjusted: 0,00 m

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

Calculations made by the ValkPVplanner are according the underneath codes and assure the right strength for pitched roof and flat roof mounting systems and sufficient ballast for flat roof systems.

The pitched roof clamp systems are MCS012 approved (MCS BBA 0159).

- NEN-EN 1990 (Structural desing)
- BS-EN 1990 (Structural design)
- IS-EN 1990 (Structural design)
- SFS-EN 1990 (Structural design)
- NBN-EN 1990 (Structural design)
- SS-EN 1990 (Structural design)
- NS-EN 1990 (Structural design)
  
- NEN-EN 1990-1-3 (Snowload)
- BS-EN 1990-1-3 (Snowload)
- IS-EN 1990-1-3 (Snowload)
- SFS-EN 1990-1-3 (Snowload)
- NBN-EN 1990-1-3 (Snowload)
- SS-EN 1990-1-3 (Snowload)
- NS-EN 1990-1-3 (Snowload)
  
- NEN-EN 1990-1-4 (Windload)
- BS-EN 1990-1-4 (Windload)
- IS-EN 1990-1-4 (Windload)
- SFS-EN 1990-1-4 (Windload)
- NBN-EN 1990-1-4 (Windload)
- SS-EN 1990-1-4 (Windload)
- NS-EN 1990-1-4 (Windload)
  
- NEN 7250 (Flat roof Solar systems)
- NVN 7250 (Flat roof Solar systems)
- NEN 7250 (Pitched roof solar systems)

## ► Default values

- The results in this project report can be based on default values. So please check if all values are correct.

## ► Safety instructions

- This user manual must be seen in addition to the installation manual which shows you how to install the solar mounting system.
- The instructions provided in this user manual must be observed at all times.
- All current structural, safety and building regulations must be observed.
- Van der Valk Solar Systems B.V. will never be liable for any direct and/or indirect intangible or consequential loss ensuing from connected to the failure to observe the instructions provided in this.
- Solar mounting systems installed on roofs will be exposed to wind and snow. The building in question will be subject to a load as a result of the PV system. A design calculation must be used to establish whether or not the building, will be able to withstand the extra load. Where necessary, modifications need to be made.
- Flat roof systems can be attached to the roof or need to be supported by ballast, to make sure that the system is unable to lift or tip over. The ballast specified in this user manual will be vital to ensure that the mounting system can be used
- Flat roof systems with an angle above 5 degrees must be attached to the roof.
- The calculations do not take into account obstacles in the near surrounding like high buildings, cliffs and mountains.
- Restrictions also apply for the position of the system on a roof. The solar panels must be installed at a certain distance from edge of the roof shown in this user manual.

## ► Guarantee

- Standard warranty for pitched roof, flat roof and ground mount systems is 10 years. This can be extended under certain conditions.
- The guarantee provided is subject to the guarantee 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](http://www.valksolarsystems.nl).

## ► Disclaimer

- For the disclaimer of the ValkPVplanner visit our website: [www.valksolarsystems.nl](http://www.valksolarsystems.nl).

## ► Contact

- If you have any questions about the ValkPVplanner, this project report or any other outcome don't hesitate to contact the Van der Valk Solar Systems team.