

ENSTALL

Project plan

Civic Centre solar,
Roof 1



Location: Civic Centre, Godfrey Rd, Newport
NP20 4UR, UK

Calculation date: 07-10-2025

FlatFix Fusion

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Scan the code for the
product manual.

Overview

General

Customer	Newport NORSE
Contact person	Chris Gosling
Version	1
Generated by	Josh Powell (josh@inspiregreen.co.uk)*

* This person can open this project in the calculator via <https://calculator.eu.enstall.com/3313594/4305378>.

Location

Address	Civic Centre, Godfrey Rd, Newport NP20 4UR, UK
Basic wind speed ($v_{b,map}$)	22.5 m/s*
Fundamental value of basic wind speed	23.27 m/s
Terrain category	Town*
Distance to coast	6.0 km*
Distance to city boundary	0.8 km*
Wind pressure	673.55 N/m ²
Snow zone	3*
Characteristic value of snow on the ground	0.37 kN/m ²
Snow load on the roof	374.29 N/m ²
Altitude above sea level	34.0 m*
Consequence class	CC2
Reference period	15 years
Calculation date	07-10-2025

* Automatically determined based on the address.

Roof specification

Roof height	10.0 m
Parapet height	1,500 mm
Edge zone depth	2.3 m
Roof pitch	0.0°
Roofing material	EPDM
Roof orientation from north	29.0°

System specification

Panel model	Eurener MEPV_Nexa DG Bif_480-500W (480 - 500Wp)
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Panel dimensions	1909 mm x 1134 mm x 30 mm
Panel weight	27.0 kg
Panel count	70
Panel angle of inclination landscape	11.3°
Configuration	Single
Orientation	Landscape
Row distance	1,637 mm
Grounding/bonding option	OFF
Segment count	5
Panel power	500 Wp
Total power	35.000 kWp

Complete list of materials

Total roof bill of materials

Article number	Description	Amount
1000612	Mounting screw M6 x 12mm	182
1000655	Mounting screw M6 x 55mm	182
1003022	Universal mid clamp with bonding	98
1004330	FlatFix end clamp 30mm	84
1007011	FlatFix Fusion base plate bracket	28
1007012	FlatFix Fusion base plate	263
1007022	FlatFix Fusion - Low base	91
1007031	FlatFix Fusion high base	91
1007042*	MLPE Clip Lightweight up to 2kg	70
1007155	FlatFix Fusion base profile 550mm	63
1007196	FlatFix Fusion base profile 1077mm	91
1007212	FlatFix Fusion wind deflector rear 1900	70
1007213	FlatFix Fusion ballast container 1900	54
1007226	FlatFix Fusion wind deflector left (base profile 1030mm - 1077mm)	21
1007227	FlatFix Fusion wind deflector right (base profile 1030mm - 1077mm)	21
1008085	Self-tapping sheet metal screw 6,0x25 mm SW10 HEX/T30	152

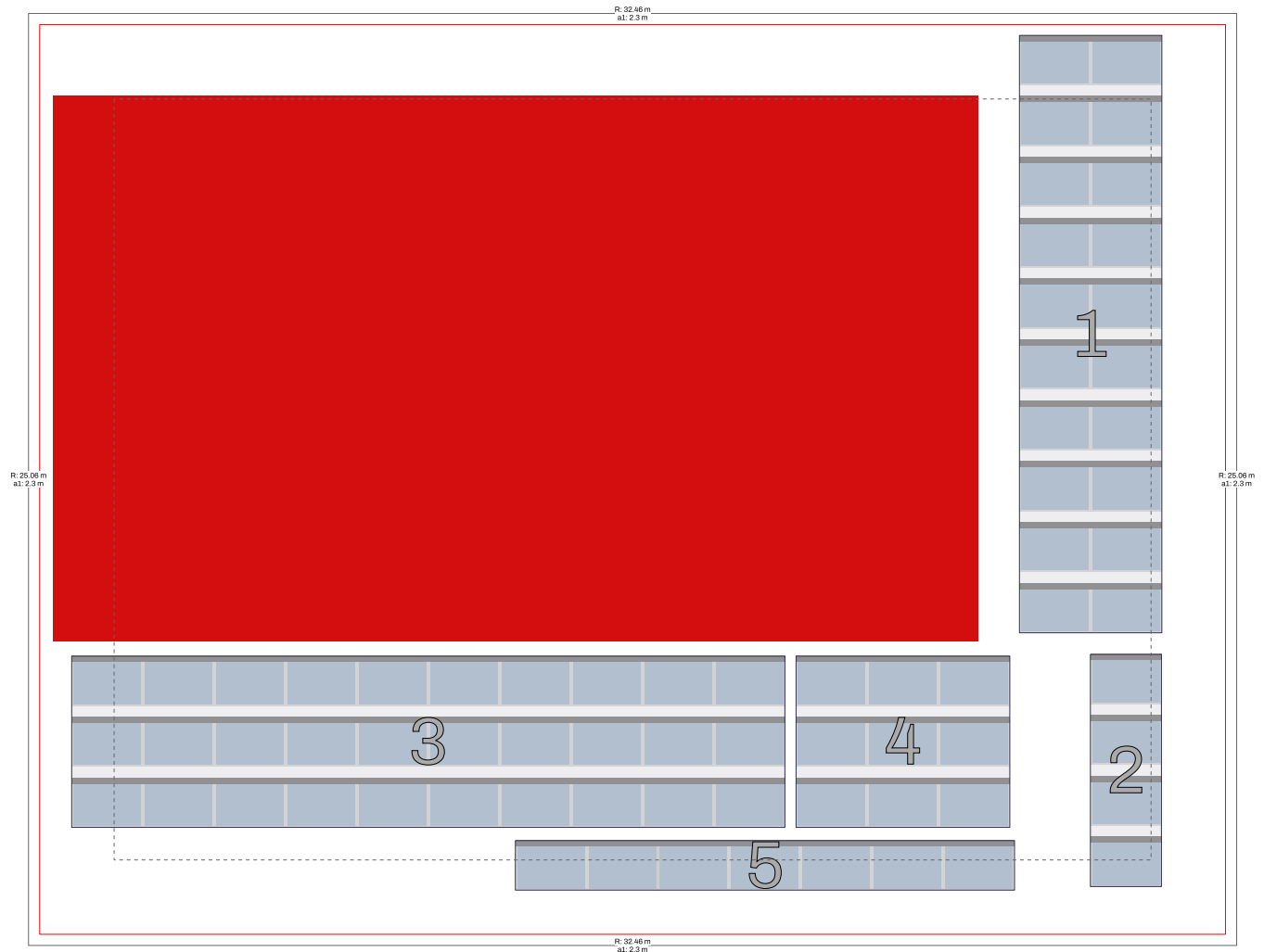
* Optional article

Number of ballast units

Number of bricks (210 mm x 105 mm x 80 mm, 4.0 kg/pc)	481
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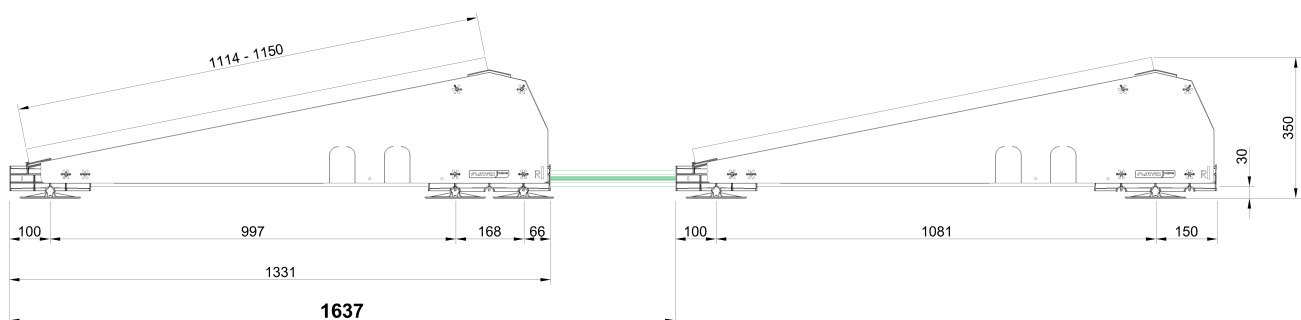
Assembly

Roof overview

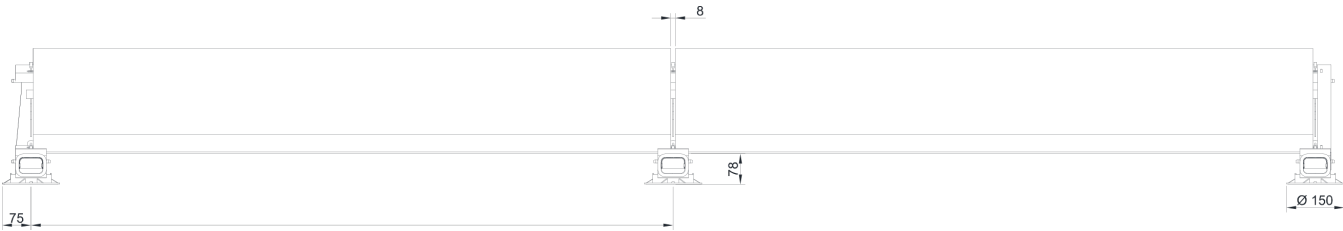


R: XXm	Length of outer roof side
—	No-Go zone width (30cm)
a1: XXm	Edge zone width from roof edge

Single landscape configuration with row distance of 1,637 mm



Rear view



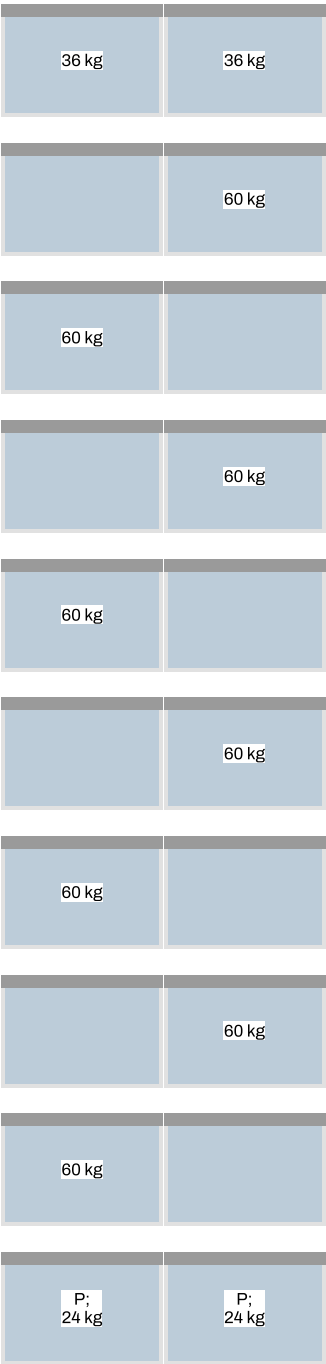
Segment 1

Panel count	20
Total power	10.000 kWp
Configuration	Single
Orientation	Landscape
Row distance	1,637 mm
Grounding/bonding option	OFF



 This assembly plan is applicable for the highlighted segments

Ballast



Check the manual for more information on the exact (perimeter) positions of the ballast containers.

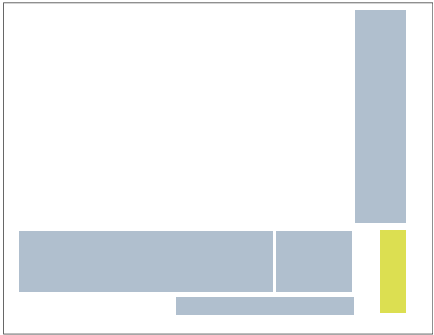
Weight per ballast unit	4.0 kg
Number of ballast units	150

Materials

Article number	Description	Amount
1000612	Mounting screw M6 x 12mm	60
1000655	Mounting screw M6 x 55mm	60
1003022	Universal mid clamp with bonding	20
1004330	FlatFix end clamp 30mm	40
1007011	FlatFix Fusion base plate bracket	3
1007012	FlatFix Fusion base plate	82
1007022	FlatFix Fusion - Low base	30
1007031	FlatFix Fusion high base	30
1007042	MLPE Clip Lightweight up to 2kg	20
1007155	FlatFix Fusion base profile 550mm	27
1007196	FlatFix Fusion base profile 1077mm	30
1007212	FlatFix Fusion wind deflector rear 1900	20
1007213	FlatFix Fusion ballast container 1900	12
1007226	FlatFix Fusion wind deflector left (base profile 1030mm - 1077mm)	10
1007227	FlatFix Fusion wind deflector right (base profile 1030mm - 1077mm)	10
1008085	Self-tapping sheet metal screw 6,0x25 mm SW10 HEX/T30	46

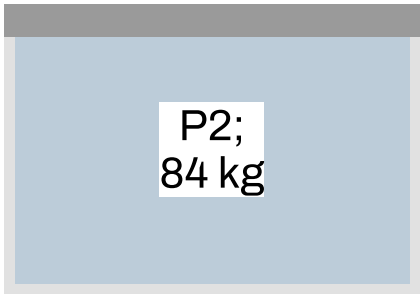
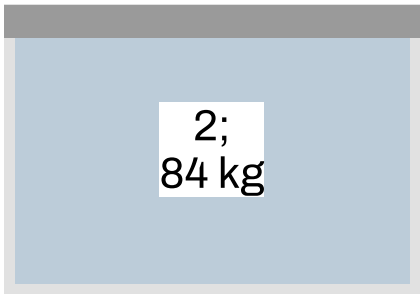
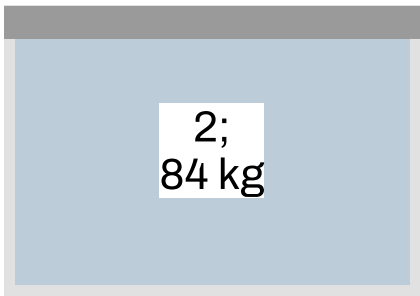
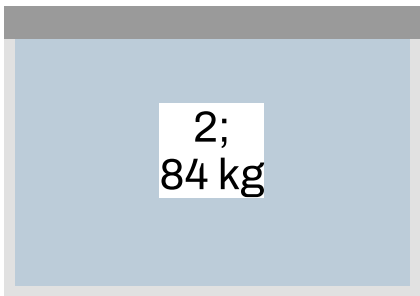
Segment 2

Panel count	4
Total power	2.000 kWp
Configuration	Single
Orientation	Landscape
Row distance	1,637 mm
Grounding/bonding option	OFF



 This assembly plan is applicable for the highlighted segments

Ballast



Check the manual for more information on the exact (perimeter) positions of the ballast containers.

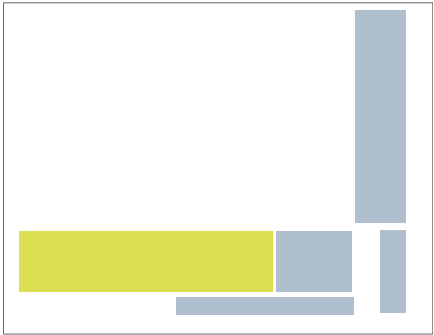
Weight per ballast unit	4.0 kg
Number of ballast units	84

Materials

Article number	Description	Amount
1000612	Mounting screw M6 x 12mm	16
1000655	Mounting screw M6 x 55mm	16
1004330	FlatFix end clamp 30mm	16
1007011	FlatFix Fusion base plate bracket	2
1007012	FlatFix Fusion base plate	26
1007022	FlatFix Fusion - Low base	8
1007031	FlatFix Fusion high base	8
1007042	MLPE Clip Lightweight up to 2kg	4
1007155	FlatFix Fusion base profile 550mm	6
1007196	FlatFix Fusion base profile 1077mm	8
1007212	FlatFix Fusion wind deflector rear 1900	4
1007213	FlatFix Fusion ballast container 1900	8
1007226	FlatFix Fusion wind deflector left (base profile 1030mm - 1077mm)	4
1007227	FlatFix Fusion wind deflector right (base profile 1030mm - 1077mm)	4
1008085	Self-tapping sheet metal screw 6,0x25 mm SW10 HEX/T30	32

Segment 3

Panel count	30
Total power	15.000 kWp
Configuration	Single
Orientation	Landscape
Row distance	1,637 mm
Grounding/bonding option	OFF



 This assembly plan is applicable for the highlighted segments

Ballast

12 kg			52 kg			52 kg			12 kg
8 kg				4 kg					8 kg
P: 28 kg	P: 28 kg	P: 28 kg	P: 28 kg	P: 28 kg	P: 28 kg	P: 28 kg	P: 28 kg	P: 28 kg	P: 28 kg

Check the manual for more information on the exact (perimeter) positions of the ballast containers.

Weight per ballast unit	4.0 kg
Number of ballast units	107

Materials

Article number	Description	Amount
1000612	Mounting screw M6 x 12mm	66
1000655	Mounting screw M6 x 55mm	66
1003022	Universal mid clamp with bonding	54
1004330	FlatFix end clamp 30mm	12
1007011	FlatFix Fusion base plate bracket	11
1007012	FlatFix Fusion base plate	91
1007022	FlatFix Fusion - Low base	33
1007031	FlatFix Fusion high base	33
1007042	MLPE Clip Lightweight up to 2kg	30
1007155	FlatFix Fusion base profile 550mm	22
1007196	FlatFix Fusion base profile 1077mm	33
1007212	FlatFix Fusion wind deflector rear 1900	30
1007213	FlatFix Fusion ballast container 1900	17
1007226	FlatFix Fusion wind deflector left (base profile 1030mm - 1077mm)	3
1007227	FlatFix Fusion wind deflector right (base profile 1030mm - 1077mm)	3
1008085	Self-tapping sheet metal screw 6,0x25 mm SW10 HEX/T30	34

Segment 4

Panel count	9
Total power	4.500 kWp
Configuration	Single
Orientation	Landscape
Row distance	1,637 mm
Grounding/bonding option	OFF



 This assembly plan is applicable for the highlighted segments

Ballast



Check the manual for more information on the exact (perimeter) positions of the ballast containers.

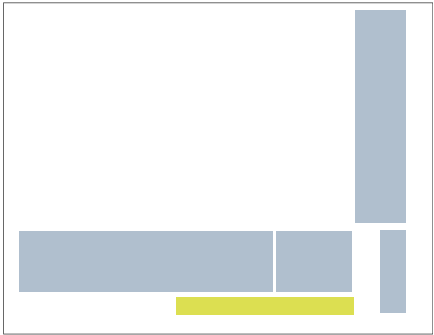
Weight per ballast unit	4.0 kg
Number of ballast units	28

Materials

Article number	Description	Amount
1000612	Mounting screw M6 x 12mm	24
1000655	Mounting screw M6 x 55mm	24
1003022	Universal mid clamp with bonding	12
1004330	FlatFix end clamp 30mm	12
1007011	FlatFix Fusion base plate bracket	4
1007012	FlatFix Fusion base plate	36
1007022	FlatFix Fusion - Low base	12
1007031	FlatFix Fusion high base	12
1007042	MLPE Clip Lightweight up to 2kg	9
1007155	FlatFix Fusion base profile 550mm	8
1007196	FlatFix Fusion base profile 1077mm	12
1007212	FlatFix Fusion wind deflector rear 1900	9
1007213	FlatFix Fusion ballast container 1900	8
1007226	FlatFix Fusion wind deflector left (base profile 1030mm - 1077mm)	3
1007227	FlatFix Fusion wind deflector right (base profile 1030mm - 1077mm)	3
1008085	Self-tapping sheet metal screw 6,0x25 mm SW10 HEX/T30	20

Segment 5

Panel count	7
Total power	3.500 kWp
Configuration	Single
Orientation	Landscape
Row distance	1,637 mm
Grounding/bonding option	OFF



 This assembly plan is applicable for the highlighted segments

Ballast

P2; 84 kg	P; 56 kg	P; 56 kg	P; 56 kg	P; 56 kg	P; 56 kg	P2; 84 kg
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Check the manual for more information on the exact (perimeter) positions of the ballast containers.

Weight per ballast unit	4.0 kg
Number of ballast units	112

Materials

Article number	Description	Amount
1000612	Mounting screw M6 x 12mm	16
1000655	Mounting screw M6 x 55mm	16
1003022	Universal mid clamp with bonding	12
1004330	FlatFix end clamp 30mm	4
1007011	FlatFix Fusion base plate bracket	8
1007012	FlatFix Fusion base plate	28
1007022	FlatFix Fusion - Low base	8
1007031	FlatFix Fusion high base	8
1007042	MLPE Clip Lightweight up to 2kg	7
1007196	FlatFix Fusion base profile 1077mm	8
1007212	FlatFix Fusion wind deflector rear 1900	7
1007213	FlatFix Fusion ballast container 1900	9
1007226	FlatFix Fusion wind deflector left (base profile 1030mm - 1077mm)	1
1007227	FlatFix Fusion wind deflector right (base profile 1030mm - 1077mm)	1
1008085	Self-tapping sheet metal screw 6,0x25 mm SW10 HEX/T30	20

Calculations

Input

Address	Civic Centre, Godfrey Rd, Newport NP20 4UR, UK
Basic wind speed ($v_{b,map}$)	22.5 m/s*
Altitude factor (c_{alt})	1.03
Fundamental value of basic wind speed	23.27 m/s
Terrain category	Town*
Distance to coast	6.0 km*
Distance to city boundary	0.8 km*
Air density	1.23 kg/m ³
Wind exposure factor (c_e)	2.49
Town terrain exposure correction factor ($c_{e,T}$)	0.95
Displacement height (h_{dis})	3.0 m
Orography factor	1.0
Wind pressure	673.55 N/m ²
Snow zone	3*
Characteristic value of snow on the ground	0.37 kN/m ²
Snow exposure factor C_e	1.0
Snow load form coefficient	1.0
Snow load on the roof	374.29 N/m ²
Altitude above sea level	34.0 m*
Consequence class	CC2
Reference period	15 years
Roof height	10.0 m
Parapet height	1,500 mm
Edge zone depth	2.3 m
Roof pitch	0.0°
Roof area	813.45 m ²
Roofing material	EPDM
Friction Coefficient	0.7
Roof orientation from north	29.0°
High building safety factor	1.0

Panel model	Eurener MEPV_Nexa DG Bif_480-500W (480 - 500Wp)
Panel dimensions	1909 mm x 1134 mm x 30 mm
Panel weight	27.0 kg
Panel count	70
Panel angle of inclination landscape	11.3°
Configuration	Single
Orientation	Landscape
Row distance	1,637 mm
Grounding/bonding option	OFF
Segment count	5
Panel power	500 Wp
Total power	35.000 kWp

* Automatically determined based on the address.

Enstall's FlatFix Fusion calculation is certified by Peutz. The certificate show that Enstall has correctly applied the wind tunnel measurements for FlatFix Fusion, combined with results of mechanical lift tests and that all results have been correctly and safely processed in the Enstall calculator. The results of the studies and their translation into a method for calculating ballast have been tested against the standards CUR Recommendation 103: 2005, NEN 7250: 2021 and the Eurocodes EN 1990 and EN 1991-1-4 with their corresponding national annexes.



Roof loads

Total weight	4,464.95 kg
Total ballast weight	1,924.0 kg
Total system weight	650.95 kg
Total panel weight	1,890.0 kg
Number of ballast units (210mm x 105mm x 80mm)	481
Roof area (gross)	813.45 m ²
System area (projected area)	208.21 m ²
Average load over roof area	5.49 kg/m ²
Average load over system area	21.44 kg/m ²
Max load over panel area	48.31 kg/m ²
Max static point load (at base plate)	16.92 kPa*, 30.48 kg/base plate
Max dynamic point load (at base plate)	51.88 kPa*, 93.45 kg/base plate

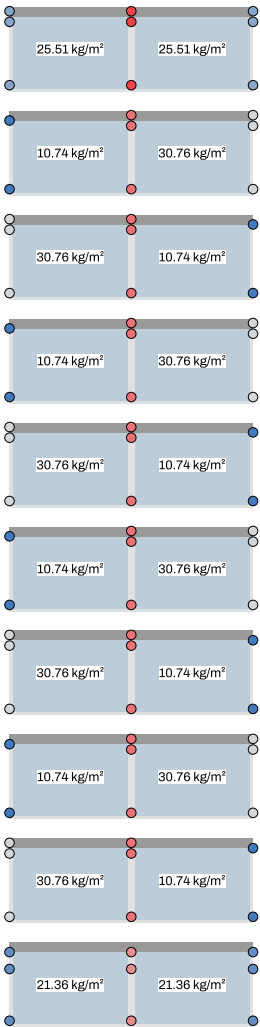
* Irregularities in the roof can cause deviating point pressures

Roof loads for segment 1

Total weight	1,331.87 kg
Total ballast weight	600.0 kg
Total system weight	191.87 kg
Total panel weight	540.0 kg
System area (projected area)	62.59 m ²
Average roof load over system area	21.28 kg/m ²
Max static point load (at base plate)	13.65 kPa*, 24.59 kg/base plate
Max dynamic point load (at base plate)	44.95 kPa*, 80.97 kg/base plate

* Irregularities in the roof can cause deviating point pressures

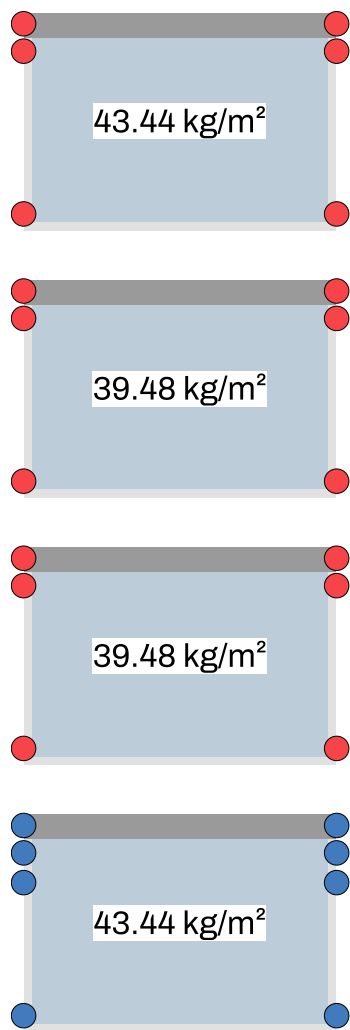
4.75 kPa  13.65 kPa



Roof loads for segment 2

Total weight	512.91 kg
Total ballast weight	336.0 kg
Total system weight	68.91 kg
Total panel weight	108.0 kg
System area (projected area)	12.35 m ²
Average roof load over system area	41.52 kg/m ²
Max static point load (at base plate)	11.83 kPa*, 21.32 kg/base plate
Max dynamic point load (at base plate)	29.24 kPa*, 52.67 kg/base plate

* Irregularities in the roof can cause deviating point pressures

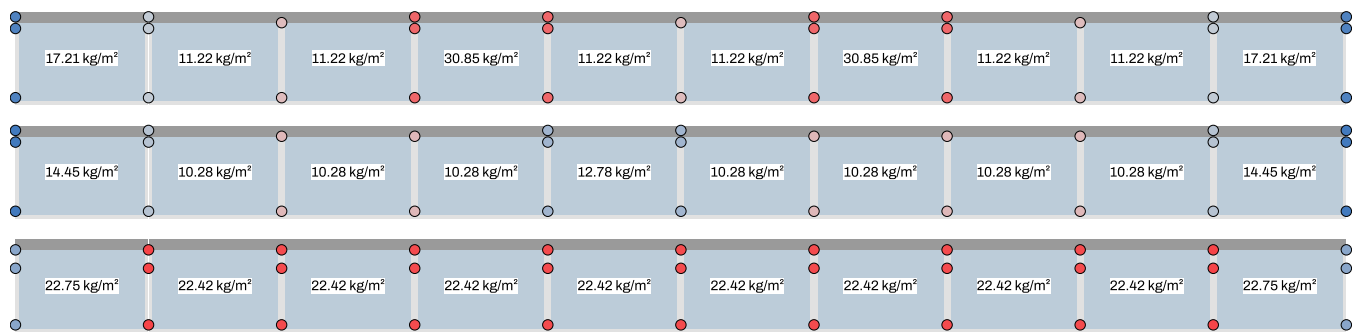


Roof loads for segment 3

Total weight	1,466.19 kg
Total ballast weight	428.0 kg
Total system weight	228.19 kg
Total panel weight	810.0 kg
System area (projected area)	88.56 m ²
Average roof load over system area	16.56 kg/m ²
Max static point load (at base plate)	11.98 kPa*, 21.59 kg/base plate
Max dynamic point load (at base plate)	51.88 kPa*, 93.45 kg/base plate

* Irregularities in the roof can cause deviating point pressures

4.26 kPa  11.98 kPa

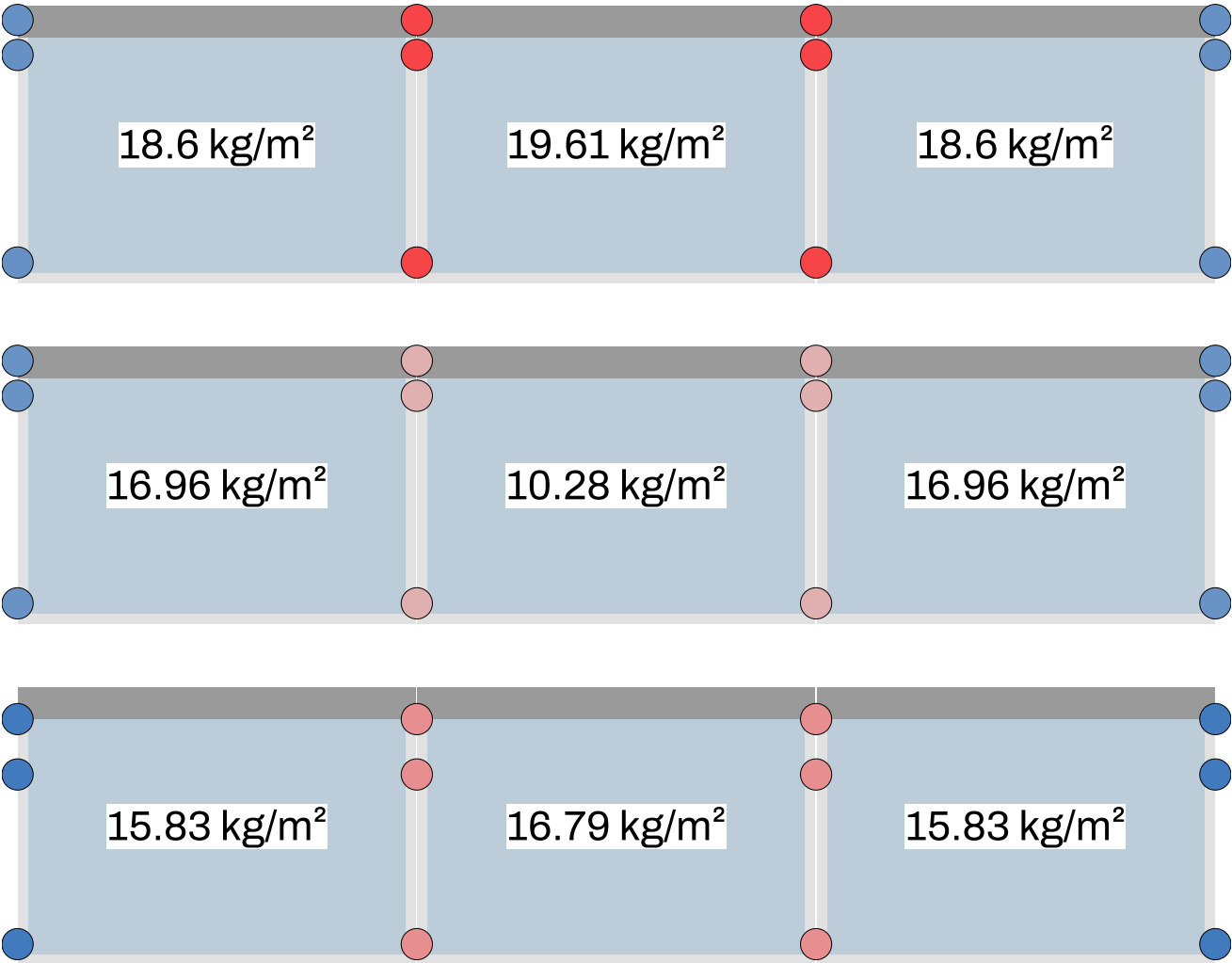


Roof loads for segment 4

Total weight	444.08 kg
Total ballast weight	112.0 kg
Total system weight	89.08 kg
Total panel weight	243.0 kg
System area (projected area)	26.77 m ²
Average roof load over system area	16.59 kg/m ²
Max static point load (at base plate)	10.13 kPa*, 18.25 kg/base plate
Max dynamic point load (at base plate)	40.21 kPa*, 72.43 kg/base plate

* Irregularities in the roof can cause deviating point pressures

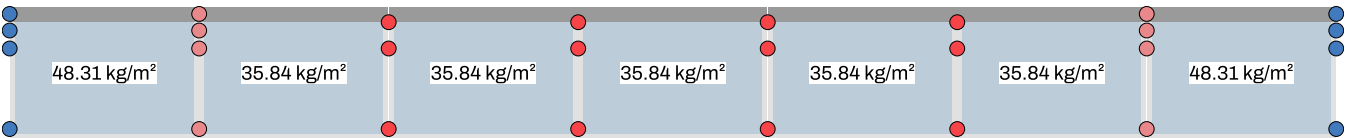
4.23 kPa  10.13 kPa



Roof loads for segment 5

Total weight	709.9 kg
Total ballast weight	448.0 kg
Total system weight	72.9 kg
Total panel weight	189.0 kg
System area (projected area)	17.94 m ²
Average roof load over system area	39.56 kg/m ²
Max static point load (at base plate)	16.92 kPa*, 30.48 kg/base plate
Max dynamic point load (at base plate)	49.37 kPa*, 88.93 kg/base plate

* Irregularities in the roof can cause deviating point pressures



Disclaimer

Please read this information carefully before starting with the design and installation of the PV system.

The output for the design of the PV system is generated by using the calculator tool made available through the website of Enstall Europe B.V. ("Enstall") at www.enstall.com (the "Calculator"). The responsibility for the correct application of the output derived from the Calculator lies with the user of the Calculator and/or the installer or any other person responsible for the installation of the PV system, which output may be subject to or impacted by many different variables and factors. The installation of a PV system onto an existing building can for example impact the existing building loads (e.g., as a result of snow and wind) or the building construction. To avoid personal injury and/or property damages, the installer or any other person responsible for the installation of a PV system should ensure that the static calculations applicable to the existing building are reviewed and confirmed beforehand by a qualified technician. Any applicable regulations, including (but not limited to) NEN 7250, EN 1990, EN 1991-1-3, EN 1991-1-4 and relevant national annexes, should be observed and adhered to. Failure to obtain such confirmation or observe and adhere to applicable regulations may, amongst others, lead to failure of the roof load-bearing structure of the building. It is advisable to consult with the insurer of the building in case of the intention to install a PV system or in case of any other intended changes to the building.

The installer or any other person responsible for the installation of a PV system should also consider, confirm or control applicable design elements which include (but are not limited to):

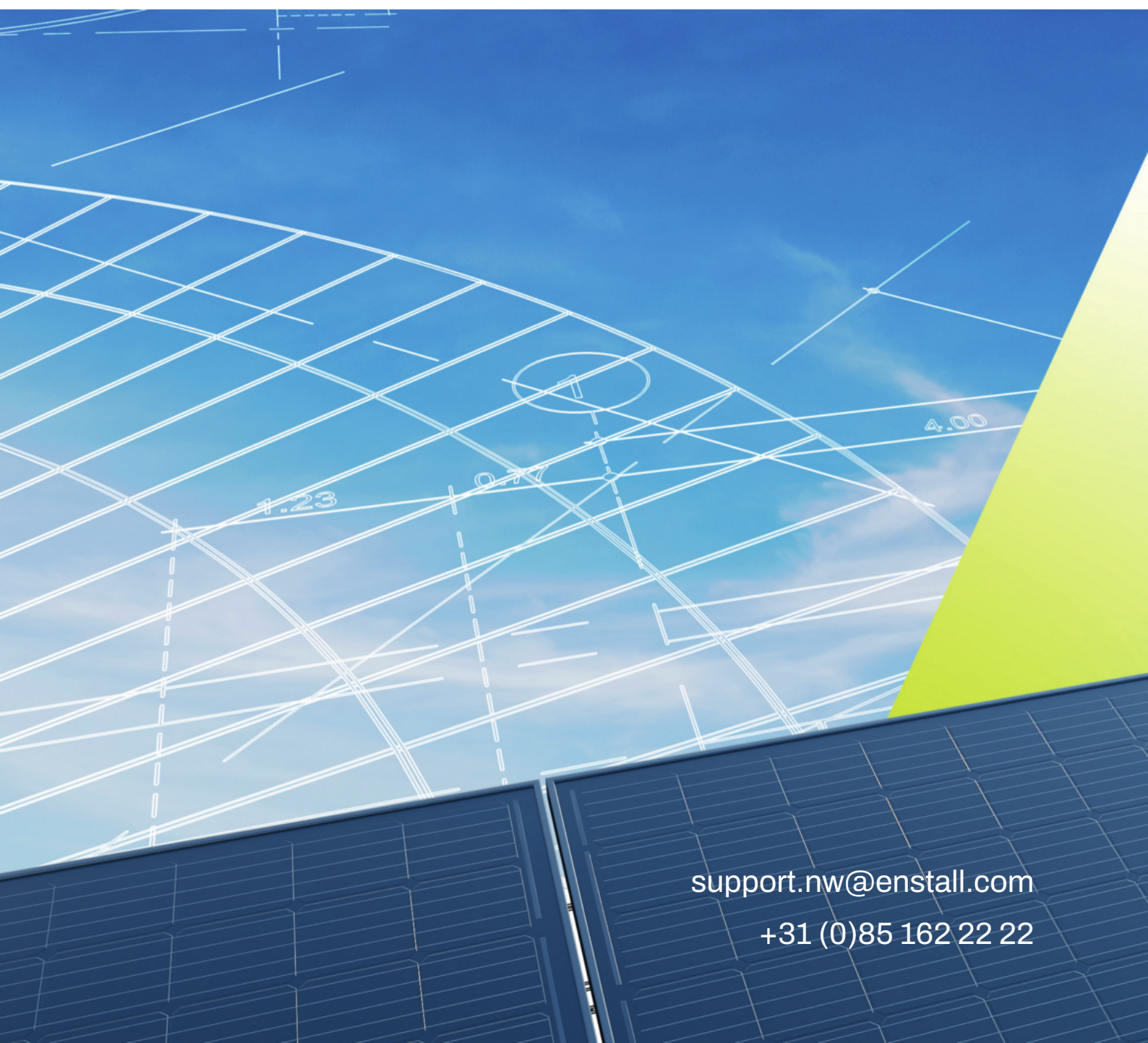
- a. changes as a result of the additional weight of the complete PV system on the building;
- b. changes as a result of the changed geometry of the building's roof;
- c. changes as a result of the dynamic wind pressure and possible accumulation of rain or any other precipitation on the building;
- d. the loads occurring during installation on the building, roofing material and insulation;
- e. the compatibility of the insulation and roofing material at the location of the contact points of the long-term PV-system's support structure, as a result of the pressure point;
- f. the compatibility of the roofing material in combination with the support structure at the location of the contact points;
- g. the effect of thermal performance of the building on the PV system and vice versa; and/or
- h. the effect of any movement and vibrations of the roof on the PV system and vice versa.

In addition, the installer or any other person responsible for the installation of a PV system should confirm the compatibility of any third party products, components or materials (including PV panels) used in conjunction with Enstall's products, if such third party products, components or materials have not been provided for such use by or on behalf of Enstall or the use of which has not been expressly authorized by Enstall. Reference to a third party product in the Calculator should not be deemed an express or implied authorization by Enstall. Enstall's products should always be used in accordance with instructions set out in the most recent version of the applicable manual, available via www.enstall.com.

Prices in the Calculator are indicative and are subject to change resulting from, amongst others, fluctuations in commodity prices.

To generate output from the Calculator Enstall relies solely on the input and information that was submitted by the user of the Calculator. Enstall is under no obligation to confirm or verify such input or information. Enstall assumes no responsibility or liability of any kind in relation to, or resulting from, such input and/or information, and/or any risks, consequences or damages (including, but not limited to, indirect or consequential losses) resulting from incorrect, inaccurate, or incomplete input and/or information that was submitted through the Calculator or resulting from the improper use of Enstall's products. Any such responsibilities and liabilities are solely for the account of the user of the Calculator and/or any other person responsible for the installation of a PV system, as applicable.

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support.nw@enstall.com

+31 (0)85 162 22 22