

HERITAGE STATEMENT

320110699P

GROUND MOUNTED SOLAR PV INSTALLATION

CHEETALL FARM
CLITHEROE ROAD
BASHALL

27 SEP 2011

APPLICATION REF - 3/2011/0699

FOR THE
ATTENTION OF

Site information

The application site is within an established farm off Clitheroe Road, Bashall Eaves approximately 1 mile from Clitheroe. The site is set down in the garden area of the farmhouse (late C18th) which is subject to a grade 2 listing status.

The details of the listing are concerned with external mullion/surrounds/porch/gutter brackets and sandstone rubble features as described in the attached extract.

The farmhouse is part of a group of established buildings typical of a working farm environment.

Design

The proposal is for a new ground mounted 8 kWp Solar PV installation south facing within the large garden area set down from the farmhouse position. The whole installation is to be mounted on galvanised steel supports fixed into the ground. The individual panel dimensions are 1650 x 992 x 45mm thick and they are to be aligned in portrait across framework.

The panels are sheathed in non reflective toughened Pilkington glass to ensure there is no glare reflectance.

The installation by virtue of its scale and location will not impact on the listing status of Cheetall farmhouse. It is worth noting that existing farm buildings sheathed in metal cladding are located in more prominent positions. The overall appearance of the solar pv installation will be similar to a small poly tunnel which is entirely appropriate for a farm environment.

The installation is a simple steel framework and the panels are angled and the overall height never exceeds 1.5m. The inverters will ensure that all the power generated by the Solar panels will be used for any electricity demands by the building occupants. The approximate annual carbon reduction achieved by the installation will be 3.5 tonnes.

SD 719 419

BASHALL EAVES

SD 74 SW

10/13

16.11.1954

Cheetall Farmhouse

II

House, probably late C18th. Sandstone rubble with stone slate roof. 2 storeys, 3 bays. Windows all of 2 lights with square mullions. All have plain stone surrounds except for the ground-floor windows to bays 2 and 3 which have architraves. Between bays 1 and 2 is a gabled porch, the door having an architrave. Shaped stone gutter brackets. Chimneys between bays 2 and 3 and on the right-hand gable.

SD 700 437

BASHALL EAVES

SD 74 SW

10/14

Clough Bottom Farmhouse

II

House, late C18th. Squared coursed sandstone with blue slate roof. Double-pile plan with central entry and end stacks. 2 storeys with attics, 2 bays. Windows of 3 lights with plain stone surrounds and square mullions. The door has a plain stone surround.

SD 697 423

BASHALL EAVES

SD 64 SE

9/15

Lodge Gate

II

Entrance lodge, mid C19th. Squared sandstone with hipped slate roof. Single storey. 2 bays each to south and east. Windows sashed with glazing bars in plain stone surrounds with semi-circular heads. Door in south wall, between bays, with plain stone surround. Central chimney.

320110699P



High Performance 60 Cell Poly crystalline 156x156mm Solar Photovoltaic Module

Model Number: CNPV-225P to CNPV-250P / Power Range: 225Wp to 250Wp

Typical Electrical Characteristics

Model Number	UOM	Standard PV Modules			Premium PV Modules		
		CNPV-225P	CNPV-230P	CNPV-235P	CNPV-240P	CNPV-245P	CNPV-250P
Rated Maximum Power-P _{max}	Wp	225	230	235	240	245	250
Power Tolerance	%	±3	±3	±3	±3	±3	±3
Maximum Power Voltage-V _{mp}	V	30.0	30.3	30.5	30.8	31.0	31.2
Maximum Power Current-I _{mp}	A	7.50	7.60	7.70	7.80	7.90	8.00
Open Circuit Voltage-V _{oc}	V	37.0	37.2	37.3	37.4	37.5	37.6
Short Circuit Current-I _{sc}	A	8.10	8.20	8.30	8.40	8.50	8.60
Maximum System Voltage-V _{DC}	V	1000					
Encapsulated Solar Cell Efficiency-η _c	%	15.4	15.8	16.1	16.4	16.8	17.1
Module Efficiency-η _m	%	13.7	14.1	14.4	14.7	15.0	15.3
Solar Cell and Configuration		60 cells (156x156 mm) in a 6x10 matrix connected in series					
Solar Cell Technology & Size	mm	Poly Crystalline 156x156 mm					
Cable Type Diameter		4mm ² (12AWG), TÜV certified					
Type of Connector		IP67, Type IV					
Junction Box		IP65 1000VDC, TÜV&UL Certified					
Number of Bypass Diodes & Type		3 Nos, Schottky By-pass diodes					
Maximum Series Fuse Rating	A	14					
Temperature coefficient of Power	%/°C	-0.45					
Temperature coefficient of V _{oc}	%/°C	-0.35					
Temperature coefficient of I _{sc}	%/°C	0.05					
Nominal Operating Cell Temperature-NOCT	°C	45 ±2					
Standard Test Conditions	STC	STC: AM=1.5, 1000W/m ² , Cells Temperature 25°C					
Operating Temperature	°C	-40~+85					
Product Certifications		IEC61215, IEC61730 & CE					

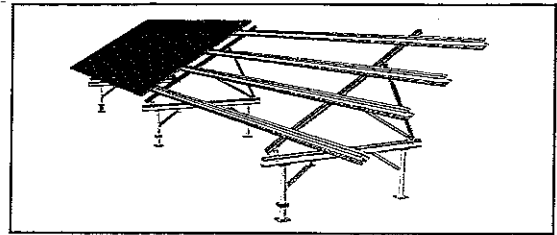
Mechanical & Packaging Characteristics

Dimensions A×B×C	mm	1650×992×46
Installation Hole Dimensions E×F	mm	990×941
Cable Length G	mm	1200
Weight	Kg	20
Number of Draining Holes in Frame		8
Construction		Superstrate: High transmission 3.2mm tempered low iron glass; Substrate: White Back Sheet; Encapsulant: Fast Cure EVA
Frame		Clear anodized aluminium alloy type 6063T5; Color: silver
Packing Configuration and Quantity per Pallet		20 pcs per carton and one carton per pallet
Container Loading Capacity		520 pcs per 40 ft cubic container



8.2 Industrial roof – IsoTop

- Support widths of up to 10 m are possible
- Direct load transfer into the supporting structure of the building
- We will assist you in the planning of the project

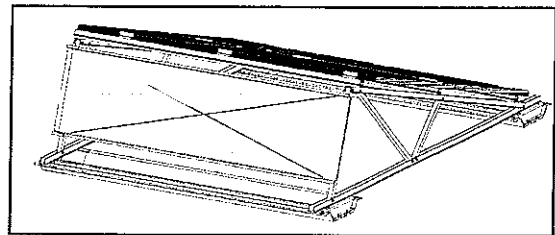


Usually the constructions are optimized in such a manner that only a few fastening points in big distances are necessary. These penetration points can be welded by the roofer reliably and inexpensively; thereby the liabilities are clearly separated.

➔ Product sheet IsoTop

8.3 Special project plannings for flat roofs Windsafe

- considerable reduction of the required loading
- bigger span widths of the module beam profiles are possible
- considerably less load onto the roof construction
- Verification of structural safety from "keeling over" and "lifting off" is possible with lower superimposed load

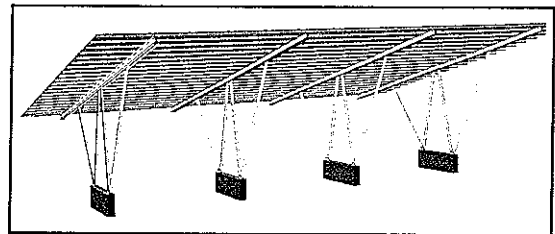


The System Windsafe © is designed in a modular manner and due to its design including a special additional wind deflector makes the proof of the plant stability possible with much less burden than with conventional constructions. ➔ Produktblatt WindSafe

8.4 Park@Sol

Parking areas with solar car ports offer a welcome completion for the extensive use of photovoltaic utilization of photovoltaic electricity generation, especially as the roof areas on car ports are granted the maximum compensation according to the electricity feeding law!

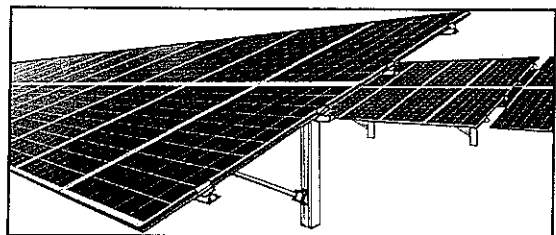
➔ Product sheet Park@Sol



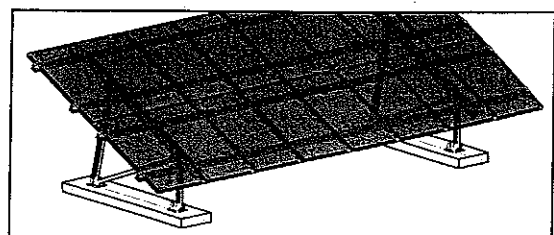
8.5 Open area

The open area system FS is individually planned for the respective installation site. Besides the pile-driving technology of the FS system, PvMax3 is available as a system for concrete foundations.

➔ Product-/mounting sheets FS/PvMax3



System FS



PvMax3