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26.451.01

A structural report

(visit dated 13 July 2026)

Hornsey Vale Community Centre, 60 Mayfield Rd, N8 9LP

It is proposed to install solar panels on top of the flat roof that is highlighted on the photo on the next sheet, together with a plan of the proposed panel layout.

The Aiko panels 1762 mm x 1134 mm in plan and weigh 21 kg each. Adding 10% to their plan area to allow some reduction for the spacing of the panels their load is 0.09 kN/m². These panels are help in place with mounting brackets that can require some ballast (bricks, blocks etc) laid on the support system to resist wind loading. We have not been given the ballast loading, but similar systems weigh less than twice the weight of the panels – hence take the installed loads as 0.27 kN/m².

Our investigation shows that the roof structure is insitu concrete slabs supported on intermediate down stand steel beams.

Typically, a flat roof will have been designed for a live load of 1.5 kN/m² but may have been designed for restricted access at 0.75 kN/m².

It is considered reasonable to allow an existing structure that shows no signs of distress to accept an additional 10% load. Based on a minimum of a 150 mm thick slab including any screed this would allow an additional load of 0.15m x 24 kN/m² x 0.1 = 0.36 kN/m².

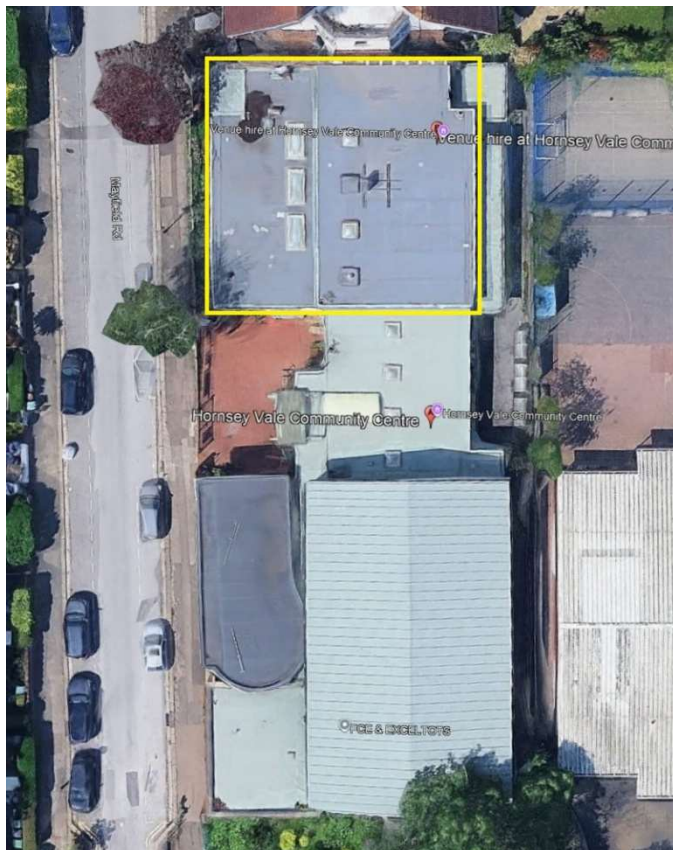
Based on the above loadings we are satisfied that the existing reinforced concrete roof structure that is supported on steel beams can carry the 0.27 kN/m² => 27 kg/m² load of the solar panels and the fixing system.

Please let us know if you have any queries.

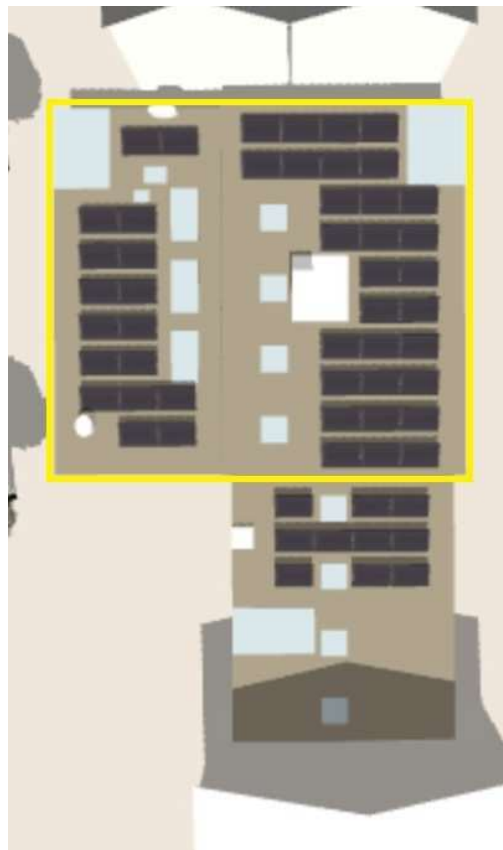
Report by



Eur Ing **M C Cooper** BSc CEng MICE MStructE
Martin Structural Engineers Ltd



Above: Plan on the centre with the area for the proposed solar panels highlighted



Above: Diagrammatic plan of the proposed solar panels in this stage, highlighted



Above: views on the roof



Left: views below the roof slab: in the service void

495W

Output

24.8%

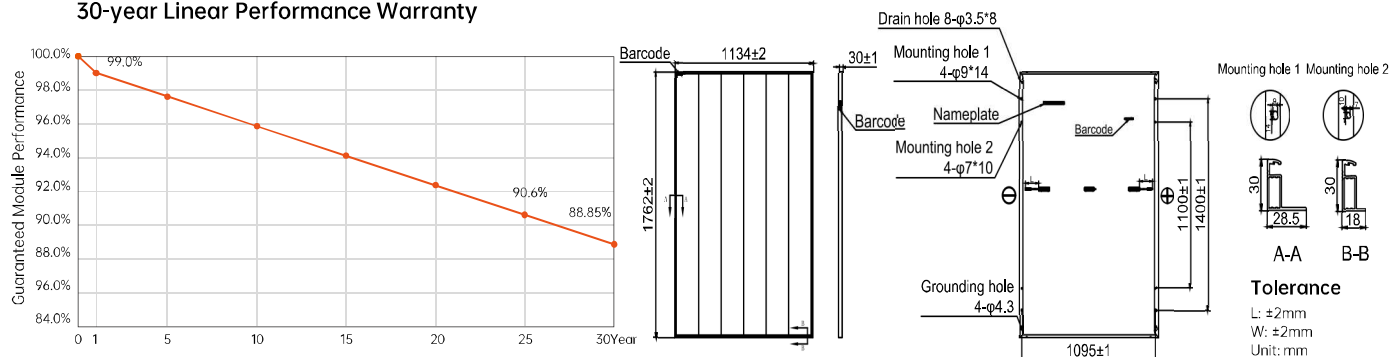
Efficiency

≤1%

First-year Degradation

≤0.35%

Annual Degradation from Year 2-30

30-year Linear Performance Warranty**Electrical Characteristics** (STC: AM1.5 1000W/m² 25°C NOCT: AM1.5 800W/m² 20°C 1m/s)

Power Tolerance: 0~+3%

Module Type	AIKO-A480-MCE54Mb		AIKO-A485-MCE54Mb		AIKO-A490-MCE54Mb		AIKO-A495-MCE54Mb	
Test Conditions	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
P _{max} [W]	480	364	485	367	490	371	495	375
V _{oc} [V]	40.90	38.80	41.00	38.90	41.10	38.99	41.20	39.09
V _{mp} [V]	34.50	32.73	34.60	32.83	34.70	32.92	34.80	33.02
I _{sc} [A]	14.80	11.96	14.84	11.99	14.88	12.02	14.92	12.06
I _{mp} [A]	13.92	11.13	14.02	11.21	14.13	11.29	14.23	11.37
Module Efficiency	24.0%		24.3%		24.5%		24.8%	

Product Specification

Cell Type	N-Type ABC
Glass	3.2mm tempered glass
Backsheet	High weather resistant backsheet
Frame	Black anodized aluminum
Cable	4mm ² (IEC) 12AWG(UL) ±1200mm
No. of Cells	108(6*18)
Junction Box	IP68, 3 bypass diodes
Connector	MC4-EVO2A
Weight	21.1kg±3%
Dimension	1762*1134*30mm
Package Detail	37pcs per pallet / 222pcs per 20'GP / 962pcs per 40'HC

Temperature Ratings (STC)

Temperature Coefficient of I _{sc}	+ 0.05%/ °C
Temperature Coefficient of V _{oc}	- 0.22%/ °C
Temperature Coefficient of P _{max}	- 0.26%/ °C

Installation Guide

Operation Temperature	-40°C - +70°C
Maximum Series Fuse Rating	25A
Protection Class	ClassII
Maximum System Voltage	DC1500V
Maximum Static Loading	Front 5400Pa Back 2400Pa
Hail Test	40 mm diameter hail at 23 m/s
Fire Rating	IEC Class C



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*AIKO reserves right to update the specification without notice
*Optional Munich Re coverage is available upon request
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