

RAPID RISK MANAGEMENT REPORT

SOLAR PANELS (PV) ROOFTOP SYSTEMS

Report Prepared for:	J. Doe Enterprises Ltd
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Date of Assessment:	7th August 2024
Rapid Reference Number:	RAPID -20240807-12345
Policy Number:	POL-987654321
Business Description:	Retail and Wholesale of Consumer Electronics
Insurer:	Insurer UK
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Solar Panels (photovoltaic) system adoption is growing fast in the UK. Not just in the domestic market but also in the commercial, industrial, and public sectors. Installations range from small-scale in primary schools and office buildings to large-scale at Kings Cross Station in London and the Olympic Park.

A common myth is that PV systems require little to no maintenance. But, like any electrical system, PV systems require regular maintenance to remain safe and efficient.

While the risks associated with solar PV panels are high, they can be mitigated with proper planning, installation, and maintenance. The rapid advancements in PV technology and adherence to changing standards are reducing those risks, making solar a viable and safer option for all sectors.

Using our own data and expertise, we can now assess solar panel risks without the need for a site visit.

TOP RISKS RELATED TO SOLAR PANELS (PV) ROOFTOP SYSTEMS

There are several risks associated with solar panels that need to be considered to ensure their safe and efficient operation.

Thoroughly assessing these risks and taking appropriate measures, such as conducting structural assessments, ensuring compliance with regulations, and maintaining high installation and maintenance standards the safety and effectiveness of solar panel systems can be significantly enhanced.

Key points for discussion:

SYSTEM DESIGN, INSTALLATION & HANDOVER

1. Who are the designers / installers of your Solar Panel (PV) system?	S P UK Limited
2. Are they MCS accredited?	YES
3. What is the capacity of the installation (in KW)?	50 kw
4. Did the installer provide you with training on how to monitor, operate and safely shut down the system?	YES
If yes to Q4	
4a Will you always have a person on site who knows how to monitor, operate and safely shut down the system?	NO
5. Do you have an Operations & Maintenance Manual?	NO
If yes to Q5.	
5a Has the Operations & Maintenance Manual been incorporated into your building(s) planned preventative maintenance (PPM) regime?	N/A

Additional Comments

There is single member of staff who was given basic training by the installing company following installation.

ROOF CONSTRUCTION/PANEL MOUNTINGS

The added weight of solar panels can pose structural challenges for roofs, potentially leading to damage or collapse if the roof is not properly assessed and reinforced prior to installation.

6. What construction material is the roof and any insulation material? <i>(e.g. pitched slate on timber with extensive felt on timber section of rear extension)</i>	Double skin pitched profile sheet steel with a mineral wool (non-combustible insulation).
7. How old is the roof? <i>(average life expectancy of a roof is 15 – 20 years)</i>	New in 2016
8. When was the roof last inspected?	Inspected annually as part of general due diligence.
9. Was a structural survey of the roof undertaken by a suitably competent structural engineer, to ensure that the roof can take the additional loadings presented by the solar panels, including any weather-related loadings such as snow, etc?	YES

10. How is the system fixed to the roof? <i>(e.g. Bolted or held down by Ballast)</i>	Bolted
10.1 If bolted, have the penetrations been fire stopped?	NO
10.2 If ballast, has the ballast been fully assessed to ensure it is adequate to hold the panel in situ during high winds?	N/A
11. How are the cables run? <i>(e.g. inside or outside the building)</i>	Outside the building

Additional Comments Insert text

INVERTERS

12. Where is the inverter located?	Adjacent to the main electrical switchgear within the warehouse.
13. If the inverters are located within the building, are they within a fire-resistant compartment with a fire rating of at least 60 minutes?	NO
13.1 Can you provide the construction details of the compartment?	NA
14. If the inverters are located externally, what distance from the building are they located?	NA
15. Are the inverters connected to a non-combustible surface?	YES
16. How old are the inverters?	3 years old

NON-ELECTRICAL INSPECTION, TESTING & MAINTENANCE

17. Are visual inspections carried out on the Solar Panel (PV) system?	YES
If yes to Q17	
17.1 How often are the inspections carried out?	Annually when the roof and gutters are inspected.
17.2 Are the inspections conducted by an internal or external contractor?	Internal
17.3 If internal, what training has been provided?	Basic training to allow him to look for damage, vegetation growth, bird nests, etc.
18. Is there safe and reliable access to the roof for maintenance of the Solar Panel (PV) system?	YES
If yes to Q18	
18.1 Is roof access appropriately secured to protect against theft of the solar panels or unauthorised access to the Solar Panel (PV) system?	YES
18.2 Is the system maintained in accordance with the details provided within the O&M manual?	NO
If no to Q18	
18.3 How is the system inspected and maintained?	The system is inspected and tested by our electrician on a 5-yearly basis.

19. Are there any signs of water ingress?	NO
20. Are there any signs of rodents / pests gnawing on the wires?	NO
21. Are there any signs of birds' nests?	YES
22. If the panels are held down by ballast, does anybody check for visible evidence of movement of the PV panel strings? <i>(provide details)</i>	N/A
If yes to Q22	
22.1 Have any signs of movement been spotted?	N/A
22.2 What corrective action has been taken?	NA
23. Is there any sign of delamination of the panels or hot spotting appearing? <i>(provide details)</i>	NO
If yes to Q23	
23.1 What corrective action has been taken?	NA
24. Are there any roof lights?	YES
If yes to Q24	
24.1 How close are the PV panels to the roof lights?	Some are installed across the top of the rooflights.
24.2 Do any of the panels cover the roof lights?	YES

Additional Comments Insert text

ELECTRICAL INSPECTION, TESTING & MAINTENANCE

Improper installation or maintenance can result in electrical hazards, such as short circuits, electrical fires, or electrocution. High-voltage direct current (DC) used in solar panels also requires careful handling to prevent accidents.

25. When was the last periodic electrical inspection and testing carried out?	2 years ago
26. Please provide details of the contractor and a copy of their report	AC Electrics Limited
27. In the report were any C1 (danger present), C2 (Potentially Dangerous), C3 (improvement required) and FI (further investigation required) defects identified?	YES
If yes to Q26	
26.1 Have any defects identified been rectified?	NO
If no to Q26.1	
26.2 Is there a plan in place to rectify the defects and what are the timescales??	No, we hadn't given this any thought.
28. Is there a DC isolating switch and is it easily accessible?	YES
29. Are the PV system details outlined in the premises Fire Risk Assessment?	NO

Additional Comments

The inspection and maintenance has been undertaken by an NICEIC approved electrical contractor but there is no evidence that he is qualified on DC power systems.

WEATHER

Solar panels are exposed to weather elements and can be damaged by hail, heavy winds, or snow.

30. Is there a written inspection programme in place following a weather event, such as; snowfall, abnormal rainfall, icy conditions, abnormal heat events, hail, high winds? NO

INFORMATION FOR UNDERWRITERS

Does this Solar Panel (PV) system conform to the standards required? NO

Additional Comments Insert text

Rapid Report completed by:	A Consultant
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EMERGING & CHALLENGING RISKS *Horizon-scanning of current macro and micro-environments highlight these risks as becoming increasingly prominent.*

1. Cyber Incidents (Cyber Crime, IT Failure), Data Breaches

According to the UK Cyber Security Breaches Survey 2024, 50% of businesses were subjected to some form of cyber-attack in the past 12 months. The report highlights only 'known' incidents, and the percentage is widely regarded as being understated.

These are not one-off incidents. Of the organisations reporting attacks, almost one-third said they occurred at least once a week. The most common incident was 'phishing', experienced by 84% of those surveyed; 35% reported being impersonated online or by email, and 17% of businesses were affected by malware or other viruses.

The average cost of a cyber-attack is estimated to be £1,205. For medium and large businesses only, this rises to £10,830. However, less than half of businesses (41%) have taken action in the past 12 months to identify cyber security risks.

2. Business Interruption

The PwC's Global Crisis and Resilience Survey 2023 shows that as many as 96% of organisations have experienced disruption in the past two years.

The business continuity threat landscape is widening every year. As well as the pandemic, supply chain, cyberattacks, political conflict, economic issues, and natural disasters are disrupting businesses throughout the world. Climate change is already causing more frequent extreme weather events, leading to severe storms and floods.

According to the RISC Authority, every year, around 20% of UK businesses face an event that is unplanned, unwanted and has the potential to threaten the very existence of their organisation. Regretfully, many, particularly those without a business continuity plan, fail to survive.

3. Underinsurance

Underinsurance is a failure to arrange the correct level of insurance cover. In the event of a claim, a business will not recover the amount required to replace its buildings, stock, machinery, plant and so on, making it impossible in some cases to return to normal operations.

As many as 81% of buildings in the UK are underinsured, and on average, they are covered for just 63% of the amount they should be. When you consider the likely cost to rebuild your business property from scratch, this means it is highly likely you would need to find around one-third of the rebuild cost yourself in the event of a major fire or total loss.

Even smaller claims are affected by underinsurance because of something called the Average Clause in insurance policies. Many businesses are unaware of the risks they face.

Avoid property underinsurance today with [RebuildCostASSESSMENT.com](https://www.RebuildCostASSESSMENT.com).

4. Lithium Batteries

Lithium batteries are used in many applications, such as consumer electronics, electric vehicles, and energy storage systems, and they have several associated risks.

According to a recent BBC report, the London Fire Brigade has stated that the fastest growing risk in the capital is [lithium battery powered] e-bikes and e-scooters. There was a 78% increase in e-bike fires in 2023 compared to the previous year, with 155 e-bike fires and 28 e-scooter fires.

Multiple lithium battery fires are reported every year, raising concerns around their use, storage and disposal. By understanding and addressing the risks, we can ensure the safe use and management of lithium batteries and maximise the benefits while minimising the hazards.

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