

Photovoltaic solar panel systems on buildings- an overview

Introduction

Photovoltaic (PV) solar panel systems are increasingly being used to create a renewable and environmentally friendly source of energy and, as a result, there is an increasing number of property owners and tenants looking to install such systems on their land and buildings.

What equipment is typically installed?

PV solar panel installations can vary in size and weight, but will often include solar panels, various types of fixings, electrical cables, connectors, junction boxes, isolation switches and inverters (which convert the DC current into AC current). Typically, the solar panels are mounted on to the roofs of industrial and commercial buildings, but there is also an increasing number of solar farms where a considerable number of solar panels are being placed on rural land.

What are the risks of installing solar panels on buildings?

- **Fire** - There is an increased risk of fire, particularly where the panel installation has been poor, incorrect or faulty equipment has been used or where there are electrical system failures. As the fires start in the roof, they can be devastating for buildings. Solar panels can also restrict fire fighters from venting or tackling a fire that has broken out in a building. It is therefore important to ensure that solar panels and equipment are not sited on top of a combustible construction or combustible roofs and to ensure that roof coverings are fire resistant.
- **Increased roof loading** - It is likely the solar panels and equipment will increase the weight load on the roof. This increases the risk of collapse during a fire. In addition, the spaces between the panels and the roof can lead to a build-up of snow, ice, waste debris, leaves and plant growth (including moss and lichen) - this can also increase weight loading on the roof and in turn affect the structural stability of the building.
- **Damage in bad weather** - There is an increased risk of damage to the roof and/or building in adverse weather. This is because the panels may be exposed to uplifting forces created by high wind speeds. There have been instances reported where solar panels have acted like a sail in high winds, with serious consequences. This is particularly important when a building is located near to a busy road and/or where panels are being considered for the roofs of tall buildings, high ground or in exposed coastal areas.
- **Repairs** - There is a risk of damage to the roof during the installation of the panels, which can lead to water ingress and expensive roof repairs. Once installed, it may also be difficult to inspect the state of repair of the roof and the condition of the panels themselves and to identify any issues. It is likely an inspection will require the use of scaffolding, adding extra cost - although one cheaper/easier option may be to use drones to carry out inspections.
- **Nesting Birds** - Nesting birds enjoy the warmth and protection of solar panels and may be attracted to nest on or around the building.
- **Restricted access** - It is likely the panels will restrict access to the roof for

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servicing, maintenance, cleaning and fire-fighting operations.

- **Injury** - There may be an increased risk of electrical shock/injury or death as a result of live electrical cables or loose or broken equipment falling from the roof.
- **Increased Buildings insurance** - It is likely that as a result of the additional risks, the buildings insurance premium for the property will increase.

Recommendations:

- It is important to discuss any proposals for the installation of PV solar panels with your building insurers as early as possible and prior to any installation works. It is essential that the risk of fire and other associated risks are fully insured against and that the insurers are aware of, and have consented to any proposals. The insurance premium payable is also likely to increase as a result of the additional risks associated with the panels.
- It is also important to contact any lender who may have requirements regarding the installation and operation of the panels and to check the terms of any legal charge over the property to see whether bank's consent is required.
- You should consider contacting other associated parties, such as the Fire and Rescue Service for their recommendations before any works are commenced.
- Carefully consider any plans and the layout of the panels to ensure there is a safe and clear access to the roof and in between the rows of panels to permit maintenance, cleaning, plant growth clearance and fire-fighting operations. Also carefully consider where any cables will run and where the inverter and meter are going to be sited (there is often a meter recording how much power is generated).
- Ensure that any fire and health and safety risk assessments are reviewed and updated to take into consideration the solar panel system.
- Whilst some installations have the benefit of permitted development rights, you should make enquiries of the Local Planning Authority/ Building Control as to whether planning permission is required and to clarify whether they have any requirements regarding the installation.
- If connecting to the grid, you will need to check to see whether you will be required to notify the Distribution Network Operator- although this is usually done by the contractor installing the panels.
- You should consider whether any other third party or statutory consents are required for the installation.
- You should consider obtaining advice on the structural stability and condition of the roof and building in conjunction with any proposed plans, to ensure the roof can support the additional weight. It is also helpful to obtain the surveyor's recommendations on how to minimise the risks associated with the panels.
- Ensure that any equipment is installed using fixings that can withstand adverse weather conditions by a suitably qualified panel operator/installer and that all equipment installed is to a recognised industry standard.
- Consider installing bird proofing to protect against nesting birds.

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- Ensure there are regular maintenance inspections of the roof, solar panels and equipment (at least annually) and that these include cleaning.
- Ensure that appropriate public liability insurance is in place in respect of the risk of injury to others.

Additional considerations for Landlords where a Tenant intends to install solar panels on a building:

- **Licence for Alterations**- Landlords should review the alterations provisions in the lease - ordinarily, the Tenant will need to apply for consent which will be documented in a Licence for Alterations. The Tenant will need to provide full details of the proposals, including any plans and drawings.
- **Rights' granted** - The parties will need to consider whether the roof is included in the Tenant's demise. If not, the Tenant will require additional rights to be granted to it, for example a right of access to the roof to install, maintain, inspect, repair etc. the solar panels. The Tenant may also require the right to erect scaffolding or to connect into the Landlord's electrical distribution board and associated cable rights. If the roof is outside of the Tenant's demise or the rights to access the roof (or any other rights needed) are not already granted to the Tenant in the lease, then the use and access to the roof will need to be documented either by way of a lease or licence of the roof space.
- **Rights reserved** - Landlord's should consider whether they require additional reserved rights over the Property, for example the right to enter the Property to inspect the panels or to temporarily remove the panels if Landlord's works need to be undertaken.
- **Tenant obligations** - Landlords should carefully consider the Tenant's proposals and any additional obligations that should be placed on them regarding the installation, maintenance and use of the panels and equipment, for example complying with health and safety regulations, making good any damage caused, removal of equipment that is not safe/in working order, installing wind and water tight fixings, keeping fixings in good repair, preventing water ingress and installing bird proofing and ensuring appropriate public liability insurance is in place.
- **Reinstatement** - Landlords will need to consider carefully what will happen at the end of the lease term - is the Tenant required remove the panels, equipment and cabling and reinstate the Property?
- **Ownership of the Panels** - Landlords should be clear about who owns the panels i.e. whether this is the tenant or a third party. Landlords need to be clear on whether there is a solar panel operator involved and should clarify whether a separate power purchase agreement is being entered into between the Tenant and a solar operator - if so, they should request a copy of the agreement before it is entered into. If there is no solar panel operator involved, the parties should consider whether ownership of the panels is to remain with the Tenant at the end of the lease term (i.e. if the panels are removed) or whether the panels are to remain at the Property and ownership is to transfer to the Landlord at the end of the lease term. If it is the latter, Landlords will need

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to carefully consider how this will affect arrangements with future tenants (for example who will be liable for maintenance and repair) and the future marketability of the property.

- **Electricity generation** - the parties will need to consider whether the Tenant will have the benefit of the whole of the energy that is generated by the panels and how this will feed into the Tenant's electricity supply in practice. The Landlord may wish to have the benefit of any excess power that is generated by the panels and which is not used by the Tenant, but consideration will need to be given to how this will work in practice and how the electricity generated will be monitored.
- **Insurance** - The Landlord will need to liaise with its insurers. In cases where the Landlord insures and recovers the buildings insurance premium from the Tenant, the Landlord will need to ensure it can recover any increase in the premium from the Tenant.

Further information

This Information Sheet has been prepared to highlight some of the key issues relating to Photovoltaic Solar Panel Systems on Buildings. It is based on our understanding of Photovoltaic Solar Panel Systems on Buildings as at June 2021 and may be affected by subsequent changes to the regulations and non-statutory guidance. For more information, please contact Harriet Nichols on 01892 701171 or email at:

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