



Safe Handling of Solar Collectors on Roofs



Introduction

This Guidance Sheet is intended to assist all those involved in arranging for work and working on roofs handling solar collectors and other large items. It provides basic information on issues to be considered to plan, manage, supervise and carry out the work safely.

Working on roofs is regarded as one of the most dangerous occupations in the construction industry. Every year nearly 50 per cent of all fatalities in construction involve falls from height, with the next most common cause involving moving or falling objects. While figures are not available to confirm the contribution that the handling of large and heavy items has within these statistics, it is believed that the risk of accidents and injury are increased due to the nature of this particular operation.

The purpose of this guidance is to provide information to assist managers, operatives and others involved with this type of work to minimise the risks of injury to themselves and others and to ensure safety during roofwork has the commitment of all those involved in the process.

Training

The installation of solar panels will need to be planned, supervised and carried out by those with sufficient skills, knowledge and experience to ensure that the process is undertaken safely (*including managing any sub-contractors*). All operatives should be trained appropriately in handling materials at height, accessing/egressing the roof and working on the roof.

Teaching people 'how to handle' is only part of the training. Training should also enable people to identify the risks associated with a manual handling task at height and to make informed decisions about what they should do to minimise the risks.

Risk assessment, planning and method statement

Before starting work, each installation location should be assessed to identify the hazards associated with the task and/or location, and to identify and record the appropriate control measures required to remove or to reduce the risks. Once this assessment has been undertaken the results will then determine the safest method for the works to be undertaken. Some of the key factors that should be considered would normally include:

- Height of the activity
- Duration of the activity
- Roof pitch and surface (*such as slippery roof surfaces*)
- Roof fragility (*such as any damaged tiles, slate, fibre cement, skylights*)—all roof surfaces should be regarded as fragile unless a competent person has confirmed otherwise
- Weather conditions—effect on roof surface safety (*for example wind/rain/ice*)
- Weather conditions—effect on the worker, exposure to the elements (*e.g. wind/rain/sun*)
- Work equipment and materials required
- Lifting equipment required (*safe access*)
- Proximity of those who may be below (*notably residents*)—consider who (*beyond the install team*) would normally have access to areas around the roof.

Other factors to address include:

- Hot/electrically-energised solar panel/roof surfaces, leads and connections.
- Roof evacuation/rescue procedure.
- Avoiding any overhead power lines.

It's vital that you communicate with the team about the hazards you have identified, and apply the necessary safety measures to control these and other significant risk factors—making any necessary changes to the Safe System of Work (SSoW) if the risk changes.

Particular lifting requirements relating to solar collectors

Solar PV/thermal panels tend to be heavy (*typically 20 kilos*), awkward and fragile, therefore a safe method of lifting the equipment is essential. This may include:

- Hoist or safety pulley/gin wheel with an automatic brake
- Spreader beam to sling and lift up the panels
- Solar panel lifting bag
- Consider whether large or heavy parts can be split down and safely reassembled on a suitable rooftop surface
- Ensure all lifting equipment and accessories have valid certificates of examination
- Inspect all lifting equipment for damage before each use, including any nylon lifting straps
- Stay within the safe working load (SWL) of the lifting equipment
- Ensure access equipment can support any additional loading
- Ensure that the method of working from the lifting platform does not place workers at risk of falling
- Ensure that the individual controlling the lift can demonstrate the correct level of skills, knowledge and training.

Key points: ensure

- The activity is properly planned, and there is a SSoW that will prevent falls and falling objects:
 1. From or through the roof, and
 2. During access.
- That the SSoW is communicated to everyone doing the work, before starting

- All operatives have the necessary skills, knowledge, experience and training regarding roof access and roof installation
- The roof and other working surfaces are not overloaded with materials or equipment
- Workers—and all the necessary equipment—can move safely to and from the place of work
- All surfaces for placing or attaching access equipment are stable and strong enough for use (*or are tested*)
- Enough time has been allocated so that the task can be completed safely
- Sufficient protection from falling objects for anyone who may be below
- Any changes to work activity are re-assessed, and any changes to the risk of harm are dealt with before work continues
- Rigorous supervision is needed to ensure that the agreed storage, handling and installation methods are followed in practice.



Further guidance

General information can be found in:

- *NRFC HSGS10—'Summary of the Work at Height'*
- *NRFC HSGS04—'Fall Protection and Prevention for Working on Roofs'*
- *NRFC Roofing and Cladding in Windy Conditions*
- *Work at Height Regulations 2005*
- *HSE HSG 33—'Health and safety in Roof Work'*

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