

ADVISORY COMMITTEE FOR ROOFSAFETY

Information Sheet No 2

Safe Handling of Solar Collectors and other Large Items on roofs

Rev 01:2017

Preface

1. Working on roofs is the most dangerous occupation in the construction industry. Every year nearly 50% of all deaths involve falls from height, with the next most common cause involving moving or falling objects. While figures are not available to confirm the contribution handling of large and heavy items has in these statistics it is believed that the risk of accidents and injury are increased due to the nature of this particular operation.
2. The Advisory Committee for Roofsafety (ACR) was set up in 1998, at the instigation of the Health and Safety Executive (HSE), to consider the safety implications of roof assemblies and working at height. It is made up of nominees from trade associations and organizations involved in roofwork that, together with HM Specialist Inspectors, produce documents that provide advice based on sound technical knowledge and many years' collective experience of roof work.

Introduction

3. The development Solar Collectors and Panels has rapidly increased over the past few years. Most of which are designed to be installed at roof level. Encouraged by Government and Green organisations the generation of energy both thermal and electric has meant that more people are involved with working at height. Not all are roofing professionals; some may be the enthusiastic DIYer who has bought his equipment from a supplier. Others may be the installation companies who are experts in the technicalities of their product but not completely familiar with all the demands of health and safety and best practices in working at height on roofs.
4. The object of this publication is to provide information to assist, managers, operatives and others associated with this type of work to minimise the risks of injury to themselves and others. To ensure safety during roofwork requires the commitment of all those involved in the process.

Scope

5. This best practice guide 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 issues to be considered to safely plan, manage, supervise and carry out the work.

Useful Guidance

6. Reference should be made to the Work at Height Regulations and Health and safety in roof work (HSG 33) both obtainable from the HSE and to Summary of the Work at Height Regulations (Guidance Sheet M) from the NRFC.

Training

7. All operatives should be trained appropriately in handling at height, for access to the roof and working on the roof.
8. 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 minimize the risks.
9. The NFRC and manufacturers of solar equipment offer installation-training courses where correct handling techniques are demonstrated.

Risk Assessment, Planning and Method Statement

10. Before starting work, each installation location should be assessed to identify the hazards associated with the task, and appropriate control measures to reduce the risks. Then to determine the best method for working at the height where the work has to be undertaken.
11. The main factors that should be taken into consideration during this assessment are:
 - How long do you estimate the activity will take?
 - How complex is the task?
 - How many component parts need to be handled?
 - The strength of the roof to support the operatives and the equipment at the same time – and how will that strength be determined?
 - The fragility of the roof elements e.g. tiles or slates, battens windows etc etc, and of the equipment to be installed. How will the roof's fragility be assessed?
 - How big, heavy and awkward the components?
 - How many people are needed?
 - How will components be lifted to the roof?
 - Are there any overhead powerlines in the immediate vicinity or serving the property?
 - How much moving around the roof will be necessary to reach and work at the elevated location with the heavy/large item?
 - What provision is needed for access to the roof and over the roof?
 - What kind of access equipment is required?
 - What kind of access equipment is available? Is it suitable?
 - How is the access equipment secured?
 - Is any additional equipment required for safe and economic working?
 - For example, is it necessary to hire a Mobile Elevating Working Platform (MEWP)?
 - The provision can be made to prevent/minimize falls of people and/or materials down and from the roof edge
 - e.g. edge protection.
 - What personal safety equipment is needed and how it is attached?
 - What are the acceptable weather conditions for working, particularly wind rain and frost that may affect the operations.
 - What is the fragility of the equipment itself?
12. A method of work resulting from the risk assessment should be developed into a site-specific method statement which sets out how the work will be carried out incorporating the provisions to minimise risk. This should be used by those managing, installing and monitoring the work.

Particular Requirements relating to Solar Collectors and large heavy objects

a) Piece Weights

13. Typical weights are :

- Solar collectors can weigh up to 60kg,
- a roll of bituminous felt 40kg,
- a roll of single ply pvc membrane <100kg.

14. All are bulky items which present risks to operatives not only from the obvious weight but also their physical size, even if not heavy, will affect the stability of the operative when working at height.

b) Storage at roof height –

- The capacity and stability of any scaffolding or any element of the roof structure that will receive the objects, even if temporarily, must be of appropriate strength and dimensions for the load.
- Objects should be loaded onto the storage platform area by mechanical means. The storage area should be as near to the location of installation as practical to minimise handling, giving due consideration to access/egress.

c) Handling of large/heavy objects –

- All handling should be done mechanically whenever possible. Where this is not possible suitable manual handling techniques must be adopted and operatives should be trained in safe handling techniques and good practice. Guidance can be obtained from the HSE on correct techniques and posture to be employed.
- It should be recognised that handling large objects at height can be effected by wind, damp, wet, or frosty conditions and operative's balance and stability may be impaired.
- Stability of the operatives must be considered – Solar Collectors are usually installed on or into pitched roofs where the operatives are not standing on a flat surface. Because of this and of the bulk of the item, ergonomically correct lifting/handling posture may not be possible. It is for this reason that greater manpower should be employed to reduce an individual's load and to stabilise the operation.

d) Heat

- Solar Collectors will become HOT – if necessary a removable cover should be used over the unit prior to being handled and if possible during installation if secure. On a sunny day the panel and associated items will heat up rapidly. Suitable protective gloves should be worn where appropriate.
- Risks to exposed flesh should be minimised, even though the panels may not burn it is possible that an operative may be destabilised by contact with hot

material. British Standard 5918 gives some guidance on handling during installation.

15. The NFRC and manufacturers of solar equipment offer installation training courses where correct handling techniques are demonstrated.

Supervision

16. Rigorous supervision is needed to ensure that the agreed storage, handling and installation methods are followed in practice.

Further guidance

17. General information can be found in the ACR Black Book [CP] 005 “Guidance note for competence and general fitness requirements for working on roofs”, and also:
- “Working on Roofs” INDG284 . - HSE
 - “Work at Height Regulations 2005” (INDG401) - HSE
 - “Health and safety in roof work" (HSG 33) - HSE.
 - “Summary of the Work at Height Regulation (Guidance Sheet M)from the NFRC.
 - “Roofing and Cladding in Windy Conditions” from the NFRC

Endorsement by HSE

18. The ACR has been authorised by HSE to include the following statement:

The Advisory Committee for Roofsafety (ACR) is a body dedicated to making working on roofs safer. Founded in 1998 by HSE, ACR comprises representatives of major roofworking federations and associations, and HSE. ACR has published a range of guides covering the design, specification and safe working on roofs. ACR acknowledges HSE’s continuing support for its work, and looks forward to making a solid commitment to Helping Great Britain Work Well. Further information can be found on the ACR website at [www,roofworkadvice.info](http://www.roofworkadvice.info).

Revision details

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Paragraph / section	Revision
Front page	Updated - Logos deleted, strapline added
General	Changed to single column format for reading on mobile devices. Paragraphs renumbered
Old Para 3	Deleted
Introduction	Minor text change
Useful guidance	Updated references
Risk assessment / planning	Component lifting text added
Particular requirements	Text re training added + minor text changes
Further guidance	Section updated
HSE Endorsement	New section
Rear Page	Updated

This document can be downloaded free of charge from the ACR website at <http://www.roofworkadvice.info> where the up to date list of members can also be found

British Constructional Steel Association [BCSA]

4 Whitehall Court
Westminster
London
SW1A 2ES
Tel: 020 7839 8566
www.steelconstruction.org
Contact: Mr P Walker

British Safety Industry Federation, Height Safety Group [BSIF,HSG]

93 Bowen Court
St. Asaph Business Park
St. Asaph
Clwyd
LL17 OJE
Tel: 01745 585600
www.bsif.co.uk
Contact: Mr G Hook

Engineered Panels in Construction [EPIC]

St Lukes Church
Pavilion Way
Macclesfield
Cheshire
SK10 3LU
Tel: 0330 221 0499
www.epic.uk.com
Contact: Mr M Hardwick

Institute of Roofing [IoR]

Roofing House
31 Worship. Street,
London
EC2A 2DX
www.instituteofroofing.org
Contact: Mr T Chiswell

Fall Arrest Safety Equipment Training [FASET]

Carthusian Court
12, Carthusian Street,
London
EC1M 6EZ
Tel: 020 7397 8128
e-mail: tony.seddon@faset.org.uk
Contact: Mr A Seddon

Metal Cladding & Roofing Manufacturers Association [MCRMA]

Metal Cladding & Roofing Manufacturers Association [MCRMA]
106 Ruskin Avenue
Rogerstone,
Newport
Gwent, NP10 0BD
Tel: 01633 895633
e-mail: info@mcrma.co.uk
www.mcrma.co.uk
Contact: Mr C Jones

National Association of Rooflight Manufacturers [NARM]

43 Clare Croft,
Middleton
Milton Keynes,
MK10 9HD
Tel: 01908 692325
e-mail: admin@narm.org.uk
Contact: Lorraine Cookham

National Federation of Roofing Contractors [NFRC]

Roofing House,
31 Worship St
London,
EC2A 2DY
Tel: 020 7638 7663
e-mail: info@nfrco.co.uk
Contact: The Technical Officer

Roof Tile Association [RTA]

Federation House
Station Road
Stoke on Trent
ST4 2SA
Tel: 01782 744631
Email: John.Mercer@weinerberger.com
Contact: Mr J Mercer

Rural Industrial Design and Building Association [RIDBA]

6-8 Bonhill Street
London
EC2A 4BX
Tel: 0844 249 0043
ridba.org.uk
Contact: The Secretary

Work at Height Safety Association [WAHSA]

3 Sherwood Road
Aston Fields Industrial Estate
Bromsgrove
Worcestershire
B60 3DU
Tel: 01527 577665
email via website www.wahsa.org.uk

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The Advisory Committee for Roofsafety (ACR) is a body dedicated to making working on roofs safer. Its membership is made up of nominees from the major roof working Federations and Associations and the Health and Safety Executive, who provide the experience of many years of involvement in working on roofs in the advice given in their documents.
