



ADVISORY COMMITTEE FOR ROOFSAFETY

Information Sheet No 2:2012

Safe Handling of Solar Collectors and other Large Items on roofs

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 Roofwork (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.
3. This information sheet was written by the National Federation of Roofing Contractors with grateful assistance of the following Associations –
 - National Association of Roof light Manufacturers [NARM],
 - Metal Cladding and Roofing Manufacturers Association [MCRMA],
 - Fibre-Cement Manufacturers Association [FCMA],
 - The National Federation of Roofing Contractors [NFRC],
 - Rural and Industrial Design and Building Association [RIDBA],
 - Flat Roofing Alliance [FRA],
 - Fall Arrest & Safety Equipment Training [FASET]

- Health and Safety Executive [HSE].

Introduction

4. The development Solar Collectors and Panels has rapidly increased over the past few years. Most are designed to be installed at roof level.
5. 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 their equipment from a supplier. Others may be the installation companies that are expanding apace with market demand, who are experts in the technicalities of their product, but not familiar with all the demands of health and safety and best practices in working at height on roofs.
6. To ensure safety during roofwork requires the commitment of all those involved in the process.

Scope

7. 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.
8. It 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 and lists issues to be considered to plan, manage and supervise the work to ensure it is carried out safely.

Training

9. All operatives should be trained appropriately in handling at height, for access to the roof and working on the roof.

10. 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.
11. The NFRC and manufacturers of solar equipment offer installation-training courses where correct handling techniques are demonstrated.

Risk Assessment, Planning and Method Statement

12. 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.
13. Then determine the best method for access to, and for, working at the height where the work has to be undertaken.
14. The main factors that should be taken into consideration during these assessments 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?

e.g. tiles or slates, battens, existing rooflights/skylights, etc

- The fragility of the roof elements
- How will the roof’s fragility be assessed?
- How big, heavy and awkward are the components?
- How many people are needed?

- How high above ground level will the work be done?
- 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)?

- What provision are to be made to prevent/minimise falls of people and materials down the roof and from roof edges?

e.g. edge protection.

- Are there people occupying the property who need access. How will they be kept at a safe distance/protected?
- What personal safety equipment is needed and how it is attached?
- What are the acceptable weather conditions for working, particularly since wind, rain and frost that may affect the safety of operations?
- What is the fragility of the equipment itself?

15. A method of work resulting from the risk assessment findings 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

16. Typical weights are:

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

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

17. 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.

18. 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. The storage area should provide a safe place from which those at roof level can handle equipment and materials.

c) Handling of large/heavy objects

19. All handling should be done mechanically whenever possible. Where this is not possible suitable manual handling techniques must be adopted, guidance can be obtained from the HSE on correct techniques and posture to be employed.

20. It should be recognised that handling large objects at height can be affected by wind, damp, wet, frosty conditions and operatives balance and stability may be impaired.

21. 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

22. Solar Collectors will become HOT – 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 possible.

23. 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 (currently being revised) gives some guidance on handling during installation.

Supervision

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

Further guidance

Further general information and guidance can be found in:

- ACR Black Book [CP]005 “Guidance note for competence and general fitness

requirements for working on roofs”, from the ACR website

- “Working on Roofs” INDG284 (rev1). from the HSE
- “Work at Height Regulations 2005” (INDG401) from the HSE
- “Health and safety in roof work” (HSG 33) from the HSE.
- “Summary of the Work at Height Regulation 2005” Technical Bulletin 35 from the NRFC.
- “Roofing and Cladding in Windy Conditions” from the NRFC

This document can be downloaded free of charge from the ACR website at www.roofworkadvice.info
Where the up to date list of members can also be found

British Constructional Steelwork 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

93 Bowen Court
St. Asaph Business Park
St. Asaph
Clwyd, LL17 OJE
Tel: 01745 5856000
www.bsif.co.uk
Contact: Mr G Hook

Concrete Tile Manufacturers Association [CTMA]

60 Charles Street
Leicester
Leicestershire, LE1 1FB
Tel: 0116 253 6161
www.britishprecast.org
Contact: Mr C Nessfield

Engineered Panels in Construction [EPIC]

29 High Street
Ewell
Surrey, KT17 1SB
Tel: 020 8786 3619
www.epic.uk.com
Contact: Mr P Trew

Fall Arrest Safety Equipment Training [FASET]

PO Box 138
Whitchurch
Shropshire, SY13 9AD
Tel: 01948 780652
e-mail: tony.seddon@faset.org.uk
Contact: Mr A Seddon

Fibre Cement Manufacturers' Association [FCMA]

5a The Maltings
Stowupland Road
Stowmarket
Suffolk, IP14 5AG
Tel: 01449 676049
e-mail: fcma@ghyllhouse.co.uk
Contact: Mr A M Hutchinson

Metal Cladding & Roofing Manufacturers Association [MCRMA]

MCRMA Ltd
106, Ruskin Avenue
Rogerstone,
Newport
South Wales, NP10 0BD
Tel: 01633 891584
Email: mcrma@compuserve.com
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 Ltd [NFRC]

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

Rural Industrial Design and Building Association [RIDBA]

5a The Maltings
Stowupland Road
Stowmarket
Suffolk, IP14 5AG
Tel: 01449 676049
e-mail: secretary@ridba.org.uk
Contact: Mr A M Hutchinson

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
Contact: Mr M Griffiths

DISCLAIMER

NOTE Although care has been taken to ensure, to the best of our knowledge, that all data and information contained herein are accurate to the extent that they relate to either matters of fact or accepted practice or matters of opinion at the time of publication, the ACR, the authors and the reviewers assume no responsibility for any errors in or misrepresentations of such data and/or information or any loss or damage arising from or related to their use

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.
