

Advice for Clients & Contractors when specifying, tendering and installing 'Roof Over-Netting' solutions

This document has been published by Fall Arrest Safety Equipment Training (FASET), the trade association representing the safety netting and temporary safety systems industries. The aim of this document is to provide guidance for clients, managers and employees when procuring, managing, supervising and installing safety nets installed over existing roofs (Roof Over-Netting).

At the time of publication there is no British or European Standard for the installation or use of Roof-Over Netting. This Guidance should be used to formulate safe systems of work by all parties who specify, install and handover a Roof Over-Netting system.

Whilst every effort has been made to ensure that the guidance provided is accurate and up to date at the time of publication, it cannot cover all situations that may be encountered and it is the responsibility of all duty holders to ensure that a safe system of work is developed for the specific project needs.



Supported by



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NFRCL

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Foreword from the National Federation of Roofing Contractors

This guidance has been produced by The Fall Arrest Safety Equipment (FASET) Roof Over-Netting Committee with the assistance of National Federation of Roofing Contractors (NFRC) Safety Health and Environment Safety Committee and the Health & Safety Executive (HSE), to assist in making roof working a safer occupation.

It draws on the experience of people who have spent many years in the roofing industry and, as such, the advice given in the document is a statement of good practice, which has been achieved.

While this document concentrates on safe working practices on industrial and agricultural roofs, much of the advice is applicable to work on other types of roof.

Working on roofs is an extremely hazardous activity. This is confirmed by the HSE's accident statistics, which also show that many of these accidents happened because the people carrying out the work were not skilled, knowledgeable, experienced or trained to do so.

Consequently, the work was carried out without the necessary planning or management and, often, without suitable equipment.

In addition, many designers of roofs do not do enough to design out risks. Neither do they consider how roofs will be built, the needs of the persons working on roofs, future maintenance needs nor demolition. Often, this results in the specification of inappropriate designs.

Some clients who have inadequate knowledge of their duties when commissioning roof work exacerbate the hazards, which exist when working at height.

This guidance provides a source of essential information, by addressing the roles and responsibilities of all who may be concerned with working on roofs. It draws on existing good practice, which is already being followed by skilled, knowledgeable, experienced and trained clients, designers and roofing companies.

The recommendations in this document are intended to reduce the level of accidents by encouraging clients, designers and roofers to recognise their responsibilities and co-operate, to make working on roofs a less hazardous occupation.

(The NFRC Health, Safety & Environmental Committee)

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Contents

Foreword-----	Page 2
Introduction -----	Page 4
Clients, Principal Designers and Designers Responsibilities -----	Page 4
General Arrangements-----	Page 4
Temporary Works-----	Page 5
Category 1 – The Structure-----	Page 5
Category 2 – The Safety Nets Used in a Roof Over-Netting Situation -----	Page 6
FASET Testing-----	Page 6
Specification of a ‘Perimeter Scaffold’-----	Page 7
Suitability of Safety Netting Materials-----	Page 7
Installers Competence-----	Page 7
Safety During Installation-----	Page 8

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Introduction

The use of “Roof Over-Netting” systems is used within the UK Construction and Refurbishment Industry as an alternative means of personnel protection when the over-sheeting of an existing structure is specified. Roof Over-Sheeting means the existing roof membrane is left in place and the new covering / panel is fixed above / through the existing structure.

The biggest risk when installing the new roofing membrane is falling through the existing fragile roof and Roof Over-Netting is a method of providing a form of fall prevention for the persons fixing the new materials. The hierarchy of fall prevention should be followed in accordance with the Work at Height Regulations: 2005 before a system of fall prevention is chosen. A collective safe system of work called Roof Over-Netting may be considered, where a safety net is laid over the existing roof providing a safe system of work for the follow-on trades.

It should be noted that the safety nets used in Roof Over-Netting must comply with BS EN 1263-1: 2014 but they are being used in an application outside of the scope of BS EN 1263-2: 2014 and BS 8411: 2007.

This system of work should only be used where traditional Type S Safety Netting is not feasible.

This guidance document has been produced at the request of the Health and Safety Executive and other interested parties.

Clients, Principal Designers and Designers Responsibilities

It is the responsibility of the person who specifies a Roof Over-Netting system to be used as a solution to:

1. Prepare a suitable risk assessment to demonstrate how the selected system has been selected over other safer systems of work (Management of Health Safety and Welfare Regulations: 1999).
2. In addition to selecting Roof Over-Netting the specifier must identify and provide information on any materials or hazards that the installer will be required to fix into or work alongside, i.e. asbestos containing materials. (Construction Design and Management Regulations (CDM) 2015 / Control of Asbestos Regulations 2012)
3. Allow sufficient resource to ensure all statutory and FASET Roof Over-Netting duties defined in this guidance can be complied with. (CDM 2015)

General Arrangements

The following arrangements should be considered and where applicable implemented by the defined duty holder to ensure the Roof Over-Netting can be installed and ultimately worked above safely.

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Temporary Works

Safety nets used in a Roof Over-Netting system are classified as an item of temporary works as defined by BS 5975: 2008+A1: 2011 *Code of practice for temporary works procedures and the permissible stress design of falsework*. At the time of publishing this guidance, FASET has determined that there are two elements of temporary works within Roof Over-Netting, these being:

1. The structure for which the nets are tied to
2. The safety nets used in the Roof Over-Netting application

It is FASET's interpretation that the design checks required, as defined within BS 5975 are:

1. Category 1 for the structure
2. Category 2 for the safety nets used in a Roof Over-Netting situation

It is the responsibility of the installation company to verify this interpretation and provide suitable and sufficient design information to the client for each project.

Category 1 – The Structure

In specifying Roof Over-Netting as a safe system of work the designer must consider how the nets can be tied off to a perimeter structure capable of withstanding individual tie loads of 6kN or justified by a competent temporary works engineer.

In the absence of 'robust primary steelwork' as suitable anchorage points, a suitably designed perimeter scaffold must be provided and handed over around the whole structure to eaves and gable height.



Figure 1. An example of a suitable perimeter scaffold to which the nets are tied

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Category 2 – The Safety Nets Used in a Roof Over-Netting Situation

Safety nets used in a Roof Over-Netting situation must be certified and tested to BS EN 1263-1: 2014 and attached to the supporting structure in accordance with BS EN 1263-2: 2014 and BS 8411: 2007.

FASET Testing

With the assistance of the HSE, FASET carried out a number of drop tests into safety nets laid over fragile cement fibre sheets, skylights and voids, secured to a robust primary structure. During the testing, the mass was dropped into the net at three different locations of the roof structure, with records of the damage to and the deflection of the net recorded.

The testing was carried out between August 2014 and March 2015 with reports produced separately by FASET and the HSE.

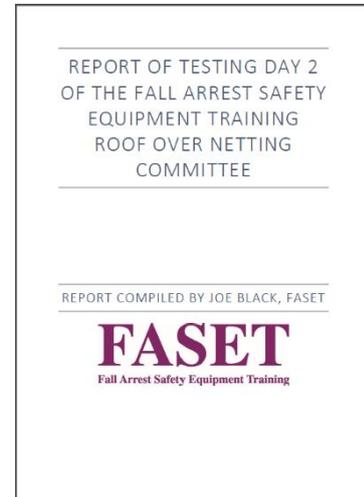


Figure 2. Front cover of the FASET test report for the second day of testing



Figure 3. One of the drop tests from August 2014

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The conclusion of both FASET and the HSE was that safety nets used in a Roof Over-Netting situation have been proven to provide a safe system of work.

Specification of a 'Perimeter Scaffold'

A scaffold structure procured for the purpose of tying safety nets to will fall outside of the NASC TG20:13 scope for a compliant scaffold' and will therefore require a bespoke design which specifically makes allowances for the forces imposed upon it in the event of the net being loaded.

Those who carry out Roof Over-Netting may use a company generic scaffold design which may suit a multitude of structures, therefore the specifier should satisfy themselves that the generic designed scaffold solution meets the parameters of the structure. Also see the "Safety During Installation" section.



Figure 4. A typical scaffold design

Suitability of Safety Netting Materials

Safety nets installed as Roof Over-Netting must comply with BS EN 1263-1: 2014 and be tied to the supporting structure in accordance with materials specified in BS EN 1263-2: 2014. Roof Over-Nets left in situ and encapsulated into the finished structure will not need an annual test after encapsulation. It is imperative that the safety nets installed comply with the test and inspection requirements of BS EN 1263-1&2: 2014 and BS 8411: 2007. At the time of installation, any Safety Net installed for Roof Over-Netting must have an in-date test for a period of the anticipated roofing programme of works plus one month.

Nets should be selected and inspected by a competent person and be prepared ready for unrolling / unfolding etc. before delivery to site.

Installers Competence

The Riggers must have an appropriate level of knowledge, skills and experience to rig Roof Over-Nets. The Rigging Team must consist of at least one CSCS Blue Skilled Safety Net Rigger card holder, who must have held that card for a minimum of three years. There should only be one CSCS Red Trainee Carded Safety Net Rigger within the team at any one time who must be under the supervision of the Blue Skilled Worker CSCS Safety Net Rigger.

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In addition to the above, the company installing Roof Over-Netting must ensure that all Riggers have received suitable in-house training covering all the practical aspects identified by the FASET Guidance.

The “Supervising Rigger” is responsible for ensuring the safe system of work is communicated to the Rigging Team before work commences and that the scaffold structure has been handed over by the scaffolding company and is within its statutory inspection date. The Supervising Rigger also needs to ensure an effective exclusion zone has been formed for the duration of all works.

Safety During Installation

The Supervising Rigger must ensure that the Site Manager / Client is aware that whilst work is being carried out on the roof, either by the installer or the roofing contractor, an exclusion zone must be created beneath.

NB: *The size of the exclusion zone needs to be assessed in relation to the foreseeable risks and could cover an area larger than the actual area being worked on as broken roof sheets can spread significantly after impact.*

Where the roof structure is of a ‘fragile material’, i.e. roof lights or asbestos / cement fibre sheet products, an internal edge protection system should be installed along the inside of the scaffold structure to prevent persons walking on the scaffold from falling onto the fragile surface. Alternatively, the operatives must utilise a harness and restraint lanyard attached to the outer edge of the scaffolding. When the safety net riggers are required to lean over the internal edge of the scaffold platform, they must attach a restraint lanyard and full body harness onto the scaffold structure. Suitable anchorage points should be highlighted in the scaffold design / report.

The Supervising Rigger must ensure that all nets are anchored around the whole building and are adequately fixed before handing over.

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