# Safe erection, use and dismantling of falsework

**Construction Information Sheet No 56**

## Introduction

Falsework is any temporary structure used to support a permanent structure while it is not self-supporting, either in new construction or refurbishment. Any failure of falsework may lead to the collapse of the permanent structure. This could cause injury or death to those working on or near to it, as well as loss of time and money.

The causes of many past failures were foreseeable and could have been prevented by proper consideration when planning, erecting, loading or dismantling the falsework. Investigations into falsework collapses have identified a lack of co-ordination between the various trades and suppliers of falsework as a major cause.

Failures often occur on fairly simple structures erected by smaller falsework contractors, who may not employ design staff.

## Statutory responsibilities

Contractors' responsibilities include:

- preventing the falsework collapsing under load;
- ensuring that those constructing and dismantling it can carry out their work safely, with particular regard to preventing falls from height; and
- minimising risks to the health and safety of others who may be working on, or passing by, the construction activity. Risks could arise, for example, from falling materials, wind-blown plywood or scaffold boards, noise and dust.

On sites where there is a principal contractor and a number of contractors, the principal contractor is responsible for the safe co-ordination of all activities on-site (including liaison with specialist proprietary suppliers).

**Management**

The law requires falsework to be erected and dismantled only under the supervision of a competent person (regulation 9(3) of the Construction (Health, Safety and Welfare) Regulations 1996). As early as possible, a person should be appointed for each site as a falsework co-ordinator, with responsibility for co-ordinating the various items and stages of use of the falsework.

- The falsework co-ordinator is commonly known as the **temporary works co-ordinator**.
- On a large contract, the appointed co-ordinator might be a suitably qualified engineer, whereas on a small building contract the role might be taken on by the site agent or foreman appointed by the contractor.
- Whoever it is, the appointed co-ordinator is responsible for ensuring that correct falsework procedures are followed and that operations are carried out safely.

Falsework should be constructed in accordance with BS 5975 *Code of practice for falsework* (and subsequently to BS EN 12812, when it is published).

**Planning**

All concerned should contribute towards the preparation of a design brief, which should serve as the starting point for subsequent decisions, design work, calculations and drawings. Initial planning should cover:

- what needs to be supported, and how it should be done; and
- how long the falsework will be in use.

**Design**

All falsework should be designed. This will vary from the use of simple standard solution tables and graphs, to site-specific design and supporting drawings. Designs should be checked. The designer of the temporary works and the person interpreting the standard solutions are commonly known as **temporary works designers**.

The term designer has a broad meaning and includes:

- anyone who specifies or alters a design, or who specifies the use of a particular method of work;
- contractors carrying out design work as part of their contribution to a project; and
- temporary works engineers, including those designing formwork, falsework, scaffolding and sheet piling.

Designers have duties under the Construction (Design and Management) Regulations 1994 (CDM) and must:

- identify the hazards;
- eliminate the hazards, if feasible;
- reduce the risk by design; and
- provide the information necessary to identify and manage the remaining risks.

Standard solutions for scaffolding, falsework etc that comply with recognised codes of practice are often used. Such solutions, when used with the recommended procedures, will normally meet the risk control requirements of CDM. However, where such solutions are adapted, consideration needs to be given to whether the risk is still effectively controlled.

Particular consideration should be given to the following:

- stability requirements, lateral restraint and wind uplift on untied decking components;
- designing falsework that can be erected, inspected and dismantled safely including how striking will be achieved (it may be craned into position in one piece but could have to be removed piecemeal);
- selecting adequate foundations or providing information to ensure adequate foundations are used; and
- providing the information that the **temporary works co-ordinator** will need to manage the interface between the falsework and the permanent structure safely.

**Materials**

Falsework should be constructed, or adapted, so as to be suitable for the purpose for which it is used:

- it should be strong enough and stable in use;
- damaged components should not be used; and
- different proprietary components should not be mixed, unless expressly approved by the designer.

## Erecting the falsework

Before erection begins a risk assessment should be carried out and a safe system of work developed. A method statement which includes how all the hazards are to be managed should be prepared. This should be read and understood by those doing the work.

To ensure safety, falsework should be stable at all stages of erection and be regularly checked. Only ‘Working Drawings’ and not ‘Preliminary Drawings’ should be used. Erectors should know:

- where to start;
- whether the equipment supplied is the same as that ordered;
- at what stage checks or permits are required; and
- whether checks and permits have already been carried out or issued.

## Loading

Once complete, all falsework should be inspected and certified as ready for use (a written permit-to-load procedure is strongly recommended). The frequency of subsequent inspections will depend on the nature of the temporary works. They should be carried out frequently enough to enable any faults to be rectified promptly.

## Striking and dismantling

The temporary works co-ordinator should agree the time of striking for each section of the falsework (a written permit-to-strike procedure is strongly recommended.)

During dismantling, ensure that workers can work safely and cannot be injured by falling objects. A sequence for dismantling should be agreed and detailed.

## Training

Temporary works co-ordinators, and those erecting and dismantling falsework, should be competent and trained in the safety of falsework.

## Legal requirements

Health and Safety at Work etc Act 1974 (HSW Act)

Management of Health and Safety at Work Regulations 1999 (MHSWR)

Construction (Design and Management) Regulations 1994, as amended (CDM)

Construction (Health, Safety and Welfare) Regulations 1996 (CHSWR)

Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)

Provision and Use of Work Equipment Regulations 1998 (PUWER)

**References and further information**

*Final report of the Advisory Committee on Falsework (The Bragg report)* HMSO 1975 ISBN 0 11 880347 6 Available from British Library www.bl.uk

BS 5975: 1996 *Code of Practice for falsework* British Standards Institution

*Checklist for erecting and dismantling falsework* CS123 The Concrete Society Tel: 01344 725704

*Investigation into aspects of falsework* Contract Research Report CRR394/2001 HSE Books ISBN 0 7176 2232 0 www.hse.gov.uk/research/crr_htm/2001/crr01394.htm

*Formwork: A guide to good practice* CS030 The Concrete Society Tel: 01344 725704

*Falsework: Full circle?* SCOSS topic paper www.scoss.org.uk/publications/rtf/SCT0201_falsework.doc

While every effort has been made to ensure the accuracy of the references listed in this publication, their future availability cannot be guaranteed.

HSE priced and free publications are available by mail order from HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995 Website: www.hsebooks.co.uk (HSE priced publications are also available from bookshops and free leaflets can be downloaded from HSE's website: www.hse.gov.uk).

British Standards are available from BSI Customer Services, 389 Chiswick High Road, London W4 4AL Tel: 020 8996 9001 Fax: 020 8996 7001 Website: www.bsi-global.com

For information about health and safety ring HSE's Infoline Tel: 08701 545500 Fax: 02920 859260 e-mail: hseinformationservices@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice.



Printed and published by the Health and Safety Executive 06/03 CIS56 C150