

HSE : LOCAL AUTHORITY SCAFFOLDING PROTOCOL

1. Enforcement initiatives in 2003 and 2004 by Inspectors of HSE's Construction Division North West found significant shortcomings with work at height related issues that necessitated formal enforcement action at more than half of the sites visited. The Merseyside & Cheshire Inspection Group held a Safety Awareness Day at Aintree Racecourse in March 2004. It was attended by representatives of 34 local scaffold companies and a full and frank discussion of the reasons for the poor performance resulted. Scaffolders complained of time pressures from their clients and multiple demands from the numerous enforcement agencies with an interest in scaffolds in public places.
2. HSE addressed these problems by proposing a comprehensive guide to erecting scaffolds in urban areas. A working group was formed including representatives of; the Merseyside & Cheshire Inspection Group, HSE's North West Support Group, Wirral M.B.C., Liverpool C.C., Merseyside Police, Merseyside-based scaffold companies and contractors working on large projects in the area. The protocol document was produced over the latter part of 2004 and the early months of 2005. The aim was to highlight measures to be taken to comply with the law during scaffold erection and dismantling, concentrating on public protection. It did not replace any national guidance, nor did it constitute a risk assessment or safety method statement. It was intended to be a working document providing a structured approach to scaffolding in urban areas, and engender a consistent approach to permit application.
3. The initial draft was reviewed by local scaffolders and members of the Liverpool-based Association of Northern Scaffolding Contractors for practicality of the system(s) it introduced. A 6 month trial of the Protocol in Wirral and Liverpool was launched to an audience of scaffolders, principal contractors and other stakeholders at John Moore's University 30 June 2005. With associated local and national press coverage. Keynote speeches were delivered by the Chief Executive of Wirral M.B.C. and the Strategic Risk Manager of Liverpool C.C. An electronic version was placed on the Wirral M.B.C. website.
4. The results of the trial were evaluated by both observation of standards and discussion with stakeholders. Results were used to compare standards in Liverpool both before and after its introduction and with standards in Manchester, a city of

comparable size where no protocol had been in operation.

5. There is no doubt that the protocol had a beneficial effect on the planning, erection and management of scaffolds in public places in the two LA areas. Its consolidated guidance was welcomed by duty holders and regulators alike. Evaluation established that physical standards improved and in respect of particular issues, the improvement was due to more than just advancement in standards over time. The comparison between Liverpool and Manchester showed high standards were achieved on occasion in both cities. However, the quality of planning and management of scaffolds was markedly better in Liverpool. Further, the protocol lifted awareness among (Planning Supervisors) now Construction Design Management Co-ordinators, and Contractors of scaffold related issues.

6. One remarkable success of the initiative was the level of engagement of local scaffold companies. They not only actively co-operated with the regulators to develop the protocol as a practical and realistic document, but have shown great commitment in adhering to it and encouraging others to do the same.

7. The construction sector and regulators of Wirral and Liverpool have shown that co-operation and commitment can make a big difference in improving standards and we all commend this approach to other regulators, local authorities and stakeholders.

Wayne Crumpton,
HM Principal Inspector,
Construction Division North
West,

Health and Safety Executive and Local Authority Scaffold Protocol

MISSION STATEMENT

PERMIT PROCEDURES

1. Permit Procedures (e.g. highway requirements, etc.)
2. Scaffold Permit Form

GUIDANCE - OVERVIEW

3. Procurement checklist
4. Hierarchy of Protective Measures
5. Competence
6. Inspection

GUIDANCE - OVERVIEW

7. Scaffold Plan
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9. Scaffold Design
10. Stability, Bracing and Testing
11. Security Procedures
12. Physical Protection
13. Raising and Lowering Materials
14. Lighting for Scaffolds and Hoarding
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ANNEXES

1. Powers and Duties
2. Emergency Procedures
3. Information to be displayed on scaffolds
4. Competence Schemes
5. Scaffold Protocol Listed Building

MISSION STATEMENT

The Protocol was originally produced in consultation with Liverpool City and Wirral Metropolitan Borough Councils, the Health and Safety Executive (HSE) and Construction Professionals, Cheshire West and Chester Council have also adopted this protocol.

The aim of the Protocol is to highlight the measures that should be taken to comply with the law during the erection and dismantling of scaffolding, with respect to protecting members of the public, and the protection of Historic buildings (see Annex 5).

The Protocol does not replace any national HSE Information Sheet or HSE Guidance, nor does it constitute a risk assessment or safety method statement.

The Protocol sets out a framework for contractors to adhere to in order that:

- (i) dismantling and erection is properly planned
- (ii) scaffolding operatives are competent and have received appropriate training and instruction on the method and sequence of work and are adequately supervised
- (iii) there is segregation of the work, to protect the public

The Protocol is a working document, intended to set out a structured approach when undertaking work in densely populated areas, but the principles are equally applicable to other environments where such work encroaches on places accessed by the public. It aims to produce a consistent approach to permit application.

It is recognised that each Local Authority has its own system for managing scaffold permits involving different departments and professionals in the issuing of permits and monitoring standards. This document describes a system that has worked well for the named Local Authorities and is offered as an

effective model.

How to use this document

Having read the Permit Procedures (Section 1), an applicant should complete the Application Form (Section 2) and return it, with a Scaffold Plan and the appropriate Fee(s), to:

Chester Area Highways Office,
Guilden Sutton Lane
Guilden Sutton
Chester
CH3 7EX

When planning work the applicant should use the 'Pre-start checklist for the planning and procurement of scaffolding' (Section 3), as well as the guidance on:

- the hierarchy of protective measures (scaffold erection and falling objects) (Section 4);
- competence (Section 5); and
- inspection (Section 6).

More detailed guidance is contained within Sections 7 to 16, and also the Annexes *{some Annexes to be completed by protocol participants}*.

NOTE

Any references to technical standards within this document are undated. Annexe 19 gives the current version and will be periodically updated. You should ensure that you are using the current standard.

PERMIT PROCEDURES

When planning for, and making, an application for a scaffold permit the person in control of the work being undertaken from the scaffold, e.g. the Client or Principal Contractor, should carefully read the following 'Permit Procedures'.

1. PERMIT PROCEDURES

When planning for, and making, an application for a scaffold permit, the **person in control** of the work being undertaken from the scaffold, e.g. the Client or Principal Contractor, should carefully read the following 'Permit Procedures'.

HIGHWAY REQUIREMENTS FOR HOARDINGS AND SCAFFOLDING

The safety of the public and operatives working in and around hoardings and scaffolds erected adjacent to or on the public highway should be protected at all times.

The Local Authority is empowered under the provisions of the Highways Act, 1980, to require the placement of a hoarding or scaffold on or near the public highway* to be licensed^Ê

Site meetings and inspections

The Local Authority is responsible for the protection of the general public and the highway. As required, both

inspections and site meetings are undertaken, depending upon the location, that will ensure that the scaffold and/or hoarding complies with the licence.

Local Authorities work in close liaison with the HSE. If it is identified that there is a potential issue with the safety of a scaffold or hoarding, either during erection, dismantling or use of the structure, the matter will be brought to the attention of the HSE.

Developers, architects and contractors will appreciate that whilst Councils' general requirements for hoardings and scaffolds are contained herein, additional discussions and site meetings may be necessary; particularly in the case of major building works, high risk/problematic areas, traffic sensitive locations, etc. to determine and agree the precise form of hoarding and/or scaffold to be erected.

Pre-start site meetings **must** be attended by **both** the person in control of the work and the scaffold company licensed to erect the scaffold. The hoardings, fence or scaffold shall be erected, maintained, lit and removed in accordance with the provisions of the Highways Act, 1980, and any other relevant statutory enactment. Every person who fails to comply with any of the provisions of these Acts, and associated licenses, shall be liable to the penalties thereby imposed as contained within the licence.

Further guidance on the issues to be considered during the planning, in particular, of any work is contained within the main part of this Protocol (Sections 7 to 16).

TRAFFIC MANAGEMENT ASSOCIATED WITH ERECTION AND DISMANTLING OF A HOARDING AND SCAFFOLD

Temporary footways

Unless otherwise agreed, a minimum 1.22 metres (4 ft) width of footway, clear of all obstruction, must be left alongside the hoarding/scaffolding during erection and dismantling of the structure, to comply with Chapter 8 of the Road Traffic Regulations Act 1984 (the 'burgundy book') and the requirements of Disability Discrimination Act 2003.

Where such minimum width cannot be provided, and also in

cases where a width of 1.22 metres (4 ft) would be inadequate, a suitable platform would be required as an extension to the hoarding to provide an even footway, either wholly or as an extension to the remaining width of the permanent footway.

The platform must be properly constructed to provide a stable, unobstructed walkway of uniform level; particular care being taken, e.g. anti-skid protection, to prevent slips and trips in cases where the platform forms an extension of the permanent footway.

Well secured impact protection or similar adequate protection shall be provided on the carriageway side of the platform to protect the walkway. If directed by the Local Authority, a continuous anti-splash panel topped by a smooth handrail shall be provided behind impact protection. These requirements should be consistent with the overall requirement to provide adequate pedestrian provision around hoarding and scaffolds at all times including during erection and dismantling, as detailed elsewhere in this guidance.

Traffic control and road closures

Where hoardings, scaffolds, or Mobile Elevating Work Platforms (MEWPs) inclusive of any additional safety zone or temporary footways, restrict the highway to less than 6.75 metres (in the case of two-way traffic) or 3.25 metres (in the case of one-way traffic), additional traffic controls and/or road closures will have to be considered as part of the application.

Any traffic management measures will need to be carried out by a suitable contractor with The National Highways Sector Scheme (NHSS) 12A to 12D qualification [Traffic Signs Manual (part 2, Operations) O6.2.4].

In the event of a road closure, an **additional six weeks** notification is required. This time is required in order for the Local Authority to advertise and seek legal agreement for the order. Therefore, it is essential that works requiring such structures to be erected in sensitive, high-risk, problematic locations are planned in good time.

It is most likely that there will be a cost for the processing and agreeing of road closures. This will be determined by the Local Authority.

Other miscellaneous costs

The granting of Hoarding and/or Scaffold/MEWP Licences (and Skip Licences) on the Highway will, on occasion - dependant on the Local Authority issuing the licence and location of the hoarding and/or scaffold/MEWP - result in potential loss of parking income associated with suspension of Pay and Display Control Parking Zones or yellow line restrictions (as authorised by the Road Traffic Act 1991). On such occasions, each Local Authority may require compensation in addition to the hoarding, scaffold, MEWP, or skip Licence Fee where appropriate.

Date, timing and duration associated with erection and dismantling

The date, timing and duration allowed for the erection and dismantling of the hoarding and/or scaffold shall be agreed with the Local Authority and shall be contained within the Scaffold Plan, required as part of the application.

This will have to be in agreement with the emergency services in certain instances, such as at sensitive locations and areas highlighted as 'high-risk' or 'sensitive locations'.

Within each Local Authority boundary there will be certain highways and pedestrianised areas that are considered high risk, sensitive or problematic areas. This may be due to the volume of pedestrians and traffic associated with city, district and local shopping centres or certain traffic sensitive streets, that at certain times of the day could cause problems for the timing of the erection and dismantling of a scaffold and/or a hoarding.

In such circumstances, the method, timing and duration required to erect any scaffold and/or hoarding will require careful and adequate planning to ensure that the highway and the general public are not put at additional undue risk during such erection and dismantling.

Indemnity

The applicant shall indemnify and hold harmless the Local Authority against all liability claims and demands whatsoever in connection with, or arising out of, the erection, maintenance, existence and/or removal of the hoarding, scaffold, fencing, platform, handrail, etc. referred to.

HIGHWAY CONSIDERATIONS WHEN PLACING SCAFFOLDS IN AND OR ACROSS THE PUBLIC HIGHWAY

Sight lines and clearance

At street junctions where a hoarding and/or a scaffold could affect visibility, it may be necessary to splay the hoarding or to replace it with wire mesh to ensure adequate sight lines.

No part of any hoarding, overhead covering or fan shall extend over the carriageway except at a clear height of at least 6 metres. Below this height no part of the hoarding shall be nearer than 0.5 metres to a vertical plane based on the line of kerb, **or** in accordance with the Traffic Signs Manual (part 1, Design) D3.2.6.

Scaffold hoardings

Hoardings must be erected around scaffolds, where they deny highway users the use of part of the width of a highway.

In cases where highway users are allowed to pass between lines of scaffold standards, precautions must be taken to ensure that clips and other fittings are not so placed as to cause danger or annoyance.

In all other cases, hoardings must be a minimum of 2 metres high (Ref. HSG 151), close-boarded or faced with plywood, etc. to provide a smooth face and painted in a uniform colour, a white (contrast) band must be present at 1.6m from the ground and be 150mm in depth unless otherwise agreed with the Local Authority.

Where diagonal scaffold tubes are placed between lines of scaffold standards and cause an obstruction, the remaining footway must be of adequate width to accommodate pedestrians, i.e. be no less than 1.22 metres (4 ft). If the remaining footway is less than the required minimum width,

then a suitable temporary footway must be provided (as outlined elsewhere in this document). Alternatively, the scaffold should be designed so as not to cause such obstructions, especially in areas where a temporary footway could not be accommodated.

Ideally the hoarding should be formed from continuous panelling erected against the lines of poles to a height of at least 2.0 metres (6ft 6 inches) and of a type and finish similar to that specified for hoardings. The panelling shall be erected on both sides of the lines of standards where pedestrians can walk on both sides of the hoarding. **(Comments please on creating a confined walkway along with public order issues).**

To protect pedestrians walking between lines of scaffold standards, a substantial close-boarded overhead covering at least 2.44 metres (8 ft) must be provided to protect persons below from spillage of materials.

As part of the preliminaries of setting up site, it may be necessary to protect the public from hazards associated with the ensuing work. This is usually accomplished by erecting a boundary hoarding. Such hoardings can be clad in a variety of materials, either permeable or semi-permeable. The structure should be designed to resist the wind and any other forces expected to act upon it with a minimum factor of safety of 1.75. Further details on the design of hoardings can be found in NASC guidance TG15.

Hoardings of a strictly temporary character, erected solely to prevent the use of part of the street by pedestrians and comprising merely of basic Chapter 8 equipment will be permitted only for operations of very short duration (max. 2 days) and/or in areas where a superior or more robust form of hoarding or protection cannot be constructed.

USE OF FANS, NETTING, SHEETING AND APPROPRIATE PROTECTION TO ENSURE PROTECTION OF THE GENERAL PUBLIC USING THE HIGHWAY

Overhead coverings, netting, sheeting or fans, of adequate construction and projection must be provided, where necessary, to protect the public and prevent materials falling onto the footway or carriageway. See Section 12, *Protection*

Fans.

Gantries over Carriageway

Overhead platforms in the form of gantries across the carriageway must also have close-boarded sides and walkways providing a minimum clearance of 6 metres, unless otherwise agreed with the Local Authority.

Surface water drainage, fire hydrants and statutory undertakers' equipment, etc.

Proper precautions shall be taken to ensure that the surface water drainage of the carriageway is not interrupted by the platform, ramp, or the hoarding. Access to fire hydrants, lamp columns, manholes, junction boxes, etc. must be preserved.

Lighting

Hoardings and scaffolds must be adequately lit during the hours of darkness and wherever possible electric lighting should be employed. They may be secured to the hoarding or scaffolding and must be regularly checked and maintained.

Where highway users are required to pass under overhead coverings or gantries, special lighting may be necessary to ensure their safety and convenience.

Hoardings and scaffolds must be adequately lit at all times between half an hour after sunset and half an hour before sunrise. See Section 14, *Guidance on Lighting for Scaffolds and Hoarding*.

Reinstatement of highway

Upon the erection or removal of hoardings or scaffolds, or upon completion of the building operations that necessitated their erection, the highway must be adequately reinstated to the satisfaction of the Local Authority. A section 50 (New Roads and Streetworks Act 1991) road opening license will be required for any openings in the highway.

Where permitted by the Local Authority re-usable paving materials taken up from the street to allow hoardings or scaffolds to be erected shall be stored by the applicant. The applicant shall maintain and keep safe the disturbed highway

during the progress of the work, after removal of the hoarding or scaffold and until final reinstatement.

Permanent reinstatement of the disturbed highway and the making good of any damage to the highway or other property of the Authority caused by the erection and or dismantling of the scaffold and/or hoarding will be carried out by the Authority at the cost of the applicant unless otherwise agreed. (NB The repair of highway damage will not be carried out by the Council in unadopted streets).

The onus of proof that damage to the highway, or other property of the Authority, was not consequent upon the applicant's operations shall be upon the applicant.

Advertisements

The Town and Country Planning (Control of Advertisements) Regulations 1969/1975, apply to the erection of advertisements on any building hoarding or scaffold.

No advertisement shall be placed on a scaffold or hoarding without such planning permission and the granting of a hoarding/scaffold license does not automatically give permission to erect such advertising. There will also be the requirement to gain a highways licence under Section 115e of the Highways Act for the advert to be placed on the highway.

Information to be displayed

The Principal Contractor, or person in control of the site, is required to make arrangements to ensure that the following information is made clearly visible at all times on site, in the form of an information board or sign:

- Local Authority with name who has given the authority
- Name of Client
- Name of Principal Contractor and Scaffold Company
- Emergency 24 hr contact number

See Annex 3, *Information to be displayed*, for an example of the information required.

Street furniture

Where the erection of the scaffold is to encase, obscure or require the removal of any street furniture including bins, lighting, signs, seating, guard-railing, etc. then the costs of removal and reinstatement of furniture shall be borne by the licence holder. Street furniture will require to be securely stored and any costs associated with the loss or damage resulting in replacement shall also be borne by the licence holder.

Scaffold & Hoarding Application Form

APPLICATION FOR PERMISSION TO ERECT HOARDING / SCAFFOLD

Highways Act 1980 Section 169/172/173

I Hereby apply for consent / permission to erect and retain scaffolding / hoarding or other structure on or over the public highway.

This form must be completed in every case where it is proposed to erect a scaffold or other structure on the highway (inclusive of grassed verges and footpaths etc) and returned together with a drawing / plan detailing the layout to:

Cheshire West and Chester Council, Chester Area
 Highways Office, Guilden Sutton Lane, Guilden Sutton
 Chester CH3 7EX

A minimum of seven days notice will be required to process this application and issue a permit, depending on the traffic management requirements

Details of Applicant			
Name of Applicant / Organisation / Client / Contractor (as applicable)			
Address of Applicant Etc.			
Name of Contact Person		Telephone:	
		Fax:	
Details of Scaffold Company			
Name of Scaffold Company			
Address of Scaffold Company		Telephone:	
		Fax:	
Details of Scaffold or Other Structure			
Address / Location of proposed scaffold / hoarding			
For what purpose is it required?			HOARE (delete)
Pavement type (flags, tarmac, other)		Length of scaffold	
For what period of time is it required?	(Days / Weeks / Months)	From:	
		To:	
Type of scaffold to be erected?		Site working hours?	
How will it be secured / tied?		How long will the scaffold to erect?	
Who will Supervise the scaffold erection?	Name:	Phone Number:	
Is the building listed or of historical importance?	YES		Confirm Listing Grade:
	NO		
If YES has the scaffold design taken this into consideration?	YES		See Scaffold Protocol I
	NO		

We hereby undertake to comply with the provision of the Acts in force, the conditions upon which any permission is granted and any pay any fees where applicable to erect and retain scaffolding on the highway.

Signed..... Name.....
 Date.....

(To be completed by representative of main contractor)

Appendix to Scaffold Permit No. (Permit number to be entered here when permit issued)

Section 1- Contact details

*(To be completed by person or organisation in **control** of construction. applying for the permit and submitted to the Approved Permit Issuer)*

a. Details of company completing this appendix. **{Refer to section 1 of guidance}**.

Company Name:

Address:

Postcode:

Telephone number:

Fax:

E mail

Contact

(Name and number of person completing this appendix):

Company Name:

Address:

Postcode:

Telephone number:

Fax:

E mail

Contact

(Name and number of contact person):

b. Name of scaffolding contractor **{Refer to section 5 of guidance}**.

c. Details of who is responsible for completion of weekly scaffold inspections **{Refer to section 6 of guidance}**

Nominated Name:

Address:

Postcode:

Telephone number:

Fax:

E mail

Contact

(Name and number of contact person):

Section 2- Scaffold Details

1	Scaffold Plan	Refer to guidance under heading scaffold plan – see section 7. The Plan should be appended to this Permit.	Details docume
2	Signage, lighting and guarding	See Section 1 – Highway Requirements Refer to guidance under headings Scaffold Sign, Security Procedures, Physical Protection, Raising and Lowering of Materials, Lighting for Scaffold and Hoarding, Electrical Hazards.- see sections	Details docume
3	Method to tie scaffold to structure / building Including: details of type of ties and locations /number	Refer to guidance under heading Stability, Bracing and Testing – Section 10, Scaffold Design – Section 9. The scaffold plan MUST clearly show the position of the ties	Cross r

Failure to include all information will cause refusal and resubmission.

The council accepts no responsibility for the accuracy of the technical submission.

Section 3 – Confirmation of details

a. I hereby declare that the details in section 1, 2 and 3 are correct at the time of completion of this appendix.

Signature:		For and on behalf of:	
Print Name:		Date:	

GUIDANCE - OVERVIEW

In planning your work you should take into account the following guidance, as detailed under the headings:

- Pre-start checklist for the planning and procurement of scaffolding
- Hierarchy of protective measures (scaffold erection and falling objects)

- Competence
- Inspection Sheets

3. PRE - START CHECKLIST FOR THE PLANNING AND PROCUREMENT OF SCAFFOLDING

Before completing your scaffold permit application, or erecting/dismantling scaffold, you should consider the following:

Client/Principal Contractor

Planning

Have you applied for a Scaffolding Permit?

Have you consulted the Local Authority concerning: traffic restrictions and/or road closures, hours of work, exclusion zones, etc. (Do **not** assume that a road closure will not be granted).

Have you obtained information from the statutory undertakers and consulted them on any restrictions (particularly for overhead cables)?

Have you provided relevant structural survey information, including whether drilled ties or physical ties can be used (e.g. box or through ties)?

Prospective Scaffolding Contractor(s)

Can you demonstrate that you have selected a competent scaffolding contractor?

Tenders/Pricing

Has the scaffolding contractor been informed (preferably in writing) about the type and extent of work, including the required duty rating? What trades will be on site?

Have you included, as appropriate, the following requirements in your contract documentation (e.g. bill of quantities, specifications):

- Design criteria, e.g. type of scaffold, duty rating, Standard (viz. TG20, BS EN 12811, etc.)
- Service information (below and above ground)
- Weather conditions
- Information relating to below-pavement basements, retaining

- walls, manholes, etc.
- Security, hoarding and fencing (at least 2m high, unless specified otherwise)
- Lighting and earthing
- Parking and loading of vehicles
- Traffic management (incl. pedestrians)
- Signage (including the provision for advertising)
- Public protection, e.g. sheeting, debris netting, fans
- Exclusion zones
- Level of supervision
- Lifting and lowering of materials
- 'Attendances' (e.g. for the alteration of ties, etc)
- Debris chutes
- Stair towers
- Statutory inspections
- Site access and egress
- Welfare facilities and space to locate them
-

Arrangements for ongoing statutory inspections of any scaffolding?

Have you informed the scaffolding contractor about **your** site rules?

Pre-Contract

Have you reviewed the Scaffolding Contractor's proposed system of work, risk assessment and scaffold plan (method statement)?

Have all emergency details been posted on the Information Board?

Have you made arrangements for electrical testing, e.g. lighting?

Scaffolding Contractor

Tendering/Pricing

When pricing the work, have you:

- visited site
- met the Client/Principal Contractor
- made an allowance for the requirements specified in the contract documentation, e.g. bill of quantities, specifications (see above)?

Have you confirmed (preferably in writing) the type and extent of work, including the exclusion zone(s) and duty rating?

Does the scaffold require a full structural design, e.g. by a competent scaffold designer?

Have you consulted any relevant statutory authorities concerning your proposed methods of work and any precautions required (particularly for overhead cables)?

Pre-Start

Have you requested a pre-start meeting with the Client/Principal Contractor?

Have you been informed about the Principal Contractor's Induction arrangements?

Have you proposed a safe system of work and prepared a risk assessment and scaffold plan (method statement)?

In selecting an appropriate type of tie, have you:

- assessed the integrity of the structure to which the tie will be attached
-

(for drilled ties) undertaken 'preliminary tie testing' (see NASC's TG4)?

Have you prepared a sketch or drawing showing the proposed tie installation sequence and location of ties?

Is the job to be supervised by a competent scaffolder?

Do you have a written Policy for the testing of ties?

Is your testing equipment calibrated?

Erection/Dismantling

Have you arrangements for briefing your operatives?

Do you maintain a record of competence and training for operatives and supervisors?

4. Hierarchy of Protective Measures (Scaffold Erection and Falling Objects)

Risk assessment

A risk assessment must be undertaken before working at height to determine what health and safety measures are required. After determining whether the work can be done in a different way, e.g. from a mobile elevating work platform (MEWP) or 'scissor lift', you should seek to: eliminate the hazard, reduce the risk, provide information and introduce control measures.

You should consider: the activity, the equipment to be used, the location, e.g. near or over roads, under power lines, etc., the environment, e.g. weather, temperature, lighting, the duration of the work, and the condition and stability of the work surfaces.

In deciding what to do, you should adopt a 'hierarchical' approach (see table, below). Where possible, eliminate the hazard (the top of the hierarchy). Where a risk remains, then steps should be planned and implemented to reduce or control that risk. The table gives examples of protective measures, which may be used in isolation or together.

Scaffold Plan ('method statement')

A good Scaffold Plan (sometimes referred to as a method statement) will be clear and concise, and laid out following the guidance contained in Section 7, *Scaffold Plan*. It will identify the hazards, assess the risk and specify the precautions to be taken.

A plan should also cover labour levels, tools and equipment to be used, as well as arrangements for when work needs to be modified, e.g. review arrangements (perhaps by a supervisor, engineer, site agent, etc.). It should, where possible, be self-contained, but may cross-reference other documentation, e.g. drawings and specifications, risk assessments or permits to avoid repetition. Sketches are a useful way of disseminating information.

	Issue	Protective Measure(s)	No
Eliminate	<i>The following are examples of measures that may be used members of the public being hit by falling objects.</i>		

	Road Closure(s)	Apply for and implement a road closure.	Do clo
		Apply for and implement a partial road closure	
Reduce	<i>The following are examples of measures that may be used to reduce the risk of members of the public being hit by falling objects.</i>		
	'Off Peak' Working	Undertake any erection and/or dismantling during hours where there are fewer members of the public, i.e. 'off peak' working	Wc tim acc ass
	Sheeting, Netting and Fans	Sheeting/netting should be used to enclose scaffolding on its public side to prevent loose materials from falling on to members of the public. Fans should be erected on the scaffold to supplement the sheeting. Consider whether these should be progressive, up the height of the structure.	The pai the pul The she mu adv Wh to acc she car the pul
	Tunnels	During quiet hours, erect a protective 'Tunnel' (and/or Fan(s)) to protect members of the public during any further erection activity.	
Inform	<i>The following are examples of the planning and information measures that may be used to reduce the risk of members of the public being hit by falling objects.</i>		
	Planning	Undertake and disseminate a risk assessment and 'scaffold plan' (method statement)	Ens unc do,
	Induction	Brief workers on site-specific issues, e.g. hazards, restrictions, etc.	
Control	<i>The following are examples of control measures that may be used to further reduce the risk of members of the public being hit by falling objects.</i>		
	Barriers	Provides barriers, e.g. edge protection, toe boards or mesh brick guards to prevent items from slipping or being knocked off the edge of a structure.	Sui rec pre

Storage	Ensure that no loose objects and tools are properly stored/secured to reduce the risk of them falling.	Ma wit bai To sh W be ma mu saf All rer
Loose Objects	Secure objects to the structure, e.g. lashing of scaffold boards.	
Lifting and Lowering	Use loading bays, mechanical hoists, etc.	Ma an des loa
Waste Chutes	Chutes should be used for discarding materials. The chute should extend down into a waste skip.	Ch ski sup cap loa
Weather	In windy weather, all loose materials should be removed or tied down to prevent them from falling.	
Dropping Material	Materials should never be thrown to/from scaffolding.	Ma sut the
Danger Areas/ Exclusion Zones	Such areas should be clearly marked with suitable safety signs.	
Signs and warnings	Appropriate measures should be employed to warn persons who may be affected of the risks associated with erection activities	Att wa Ou 'Da Sci loc ha:

5. Competence

A competent individual is one with sufficient professional or technical training, knowledge and actual experience to enable them to:

- carry out their assigned duties at the level of responsibility allocated to them;
- understand fully any potential hazards related to the work and the equipment to be used;
- detect any technical defects or omissions in that work and equipment, recognise any implications for health and safety from those defects or omissions, and be able to take remedial action to deal with these.

All workers should be trained in safe working practices (including those to protect the public, and particularly children). Managers and supervisors need competence to deliver safety standards on site and effective training of scaffolders is probably the most important factor in preventing accidents. Numerous courses are available, e.g. those organised by national or local federations, manufacturers/suppliers, industry training boards, etc.

Competent companies

The law requires that whoever you appoint to design, provide, erect or dismantle a scaffold, you must take reasonable steps to ensure that they are competent. It is recommended that before appointing a scaffold contractor you:

- obtain written detailed evidence of a company's competence;
- judge the evidence against a set of criteria.

Criteria

In demonstrating (or checking) the competence of a contractor, the following should be considered, as appropriate. The extent and detail of any checks should be proportionate to the risk.

- What is their past experience and track record (in similar work)?

- Does the contractor use workers registered with a recognised training scheme (e.g. CISRS)?
- Are they a member of a trade association (e.g. NASC[1], or similar[2]), or safety group?
- Are there appropriate levels of site supervision by those with practical experience and training and is their skill level maintained?
- Are management and work systems subject to quality and safety audits?
- Are there procedures to ensure adequate design, checking (including conceptual errors) and 'control of amendments'?
- What procedures are in place for the checking and maintenance of equipment?
- Do they have, implement and review policies for establishing safe systems of work (including procedures for hazard identification, risk assessment and control of the work)?
- How do they ensure the adequate allocation of resources (including time, money, plant and equipment)?
- Do they have knowledge of a range of equipment and techniques?
- Are design, erection, dismantling and alteration planned, managed and undertaken by appropriately qualified and experienced personnel?
- **Are training records available?"**

Individuals

The law requires that individual operatives be competent (or in the case of trainees, supervised by a competent person) for the type of scaffolding work they are undertaking. They should have received appropriate training relevant to the type and form of scaffolding they are working on.. An indication of competence is whether the individual is the holder of a:

- CISRS Scaffolder Card (or, for more complex scaffold structures, the Advanced Scaffolder Card)[3]; or
- OSAT NVQ (of the appropriate level for the complexity of the scaffold) and/or,

- Certification of competence resulting from training under a recognised manufacturer/supplier scheme e.g. SA-FE [Manufacturers/Suppliers Specific Training Card](#).

Such persons will normally be accepted as being competent to carry out scaffolding erection, dismantling and alteration to the limitations of their qualification, as part of a scaffolding gang. Scaffolders should at all times carry, or have ready access, to their card or equivalent. Those in control of construction activities can easily ask for sight of such cards as part of a competence check.

Descriptions of some scaffolder competence schemes are given in Annex 4.

Supervision

Employers must provide appropriate levels of supervision, taking into account the complexity of the work and the levels of training and competence of the scaffolders involved. As a minimum, every scaffolding gang should contain an appropriately qualified scaffolder for the type and complexity of the scaffold to be erected, dismantled or altered. This may be an individual regarded as a working foreman or leading hand, who has received training under an industry-recognised training scheme e.g. CISRS and has been awarded the Scaffolders card, or someone who has received training under a recognised manufacturer/supplier scheme e.g. SA-FE to the limit of the configuration(s) involved.

Erection, alteration and dismantling of complex designed scaffolds (e.g. suspended scaffolds, shoring or temporary roofs) should be done under the direct supervision of a competent person. This may be a CISRS qualified Advanced Scaffolders, a design engineer providing he/she possess the necessary industry experience, or alternatively, an individual who has received training under a recognised manufacturer/supplier scheme to the limit of the configuration(s) involved. Whatever the training and certification of this competent person, it should cover the type of scaffolding materials/system employed.

Trainee scaffolders should always work under the direct supervision of a qualified scaffolder (i.e. a working foreman). Scaffolders are classed as trainees until they have completed the approved training and the assessment required to be

deemed competent.

Supervision of a project or site involving scaffolding also needs to be entrusted to someone who is competent. This will involve wider issues than just erection etc of the scaffold e.g. deploying staff, inspection and general health and safety matters. This person need not be a qualified scaffolder.

Scaffold Inspection

While it is not essential that the person carrying out scaffold inspections is a qualified scaffolder, it is important that he/she is competent to do so. A large number of organisations provide training courses for scaffold inspectors. Since the complexity of scaffolds can vary enormously, anyone appointing a scaffold inspector should carefully consider the content of that person's training and how current his/her knowledge is, before deeming him/her competent to inspect the scaffold in question. To ensure objectivity, it is not advisable for scaffolders to inspect their own work.

The following section describes the requirements for scaffold inspections.

6. Inspection

Although not a record of inspection, a signed scaffold hand over certificate and scaffold plan should be obtained from the scaffold contractor before the scaffold is taken into use. The certificate should be retained on site and kept with the inspection records.

The scaffold should be inspected in accordance with the requirements of the Work at Height Regulations 2005, Regulation 12.

The scaffold should be inspected:

- Prior to being taken into use for the first time;
- After any significant alteration or adverse weather;
- After any event likely to affect its stability;
- Regular intervals not exceeding 7 days.

The inspection record should be made available on site.

A system, such as a scaffolding tag procedure, should be in place to communicate when a scaffold is **not** safe for use.

GUIDANCE - DETAIL

In planning your work you should take into account the following guidance, as detailed under the headings:

- scaffold plan (often known as a 'method statement')
- scaffold sign
- scaffold design
- stability and testing
- security procedures

- physical protection
- raising and lowering of materials
- lighting, electrical hazards
- work near asbestos containing materials.

7. Scaffold Plan

In producing a scaffold plan you should identify any significant hazards, determining who can be affected and evaluate what risk the hazards pose in practice. This is called a risk assessment.

The scaffold plan should take account of the risks identified by the risk assessment and communicate the safe system of work to those undertaking it. Advice on this matter can be found in NASC Guidance Notes SG24 – *A Guide for Scaffold Plans* and SG7 – *A Guide to Risk Assessments*.

The scaffold plan is an effective way of providing information to employees about how work is expected to be done and precautions that should be taken.

The scaffold plan, which must be site-specific, should address the following issues:

1. Name of the scaffold supervisor and/or person responsible for managing work
2. Name of the person responsible for managing the site
3. Who is to use the scaffold and for what
4. Pre-start briefing, so that the plan is communicated to all operatives
5. Programme and sequencing of works to ensure a systematic and logical approach
6. Delivery arrangements for materials
7. Where to start erection of scaffolding
8. Proposed working hours for erection and dismantling

9. Local factors such as overhead cables, roadways, schools, work close to water, etc.
10. Public protection
11. Fall protection
12. How the scaffold is to be stabilised
13. Ground preparation
14. Is the scaffold to be sheeted? If yes who is responsible for design?
15. Is the scaffold to be used for advertisements? If so who is responsible for design?
16. Waste removal
17. Inclement weather
18. Emergency procedures including out of hours telephone numbers
19. Scaffolders' welfare arrangements
20. Arrangements for handing over scaffold to the user

Your completed 'scaffold plan' should be appended to the permit application form

8. Information to be displayed

A suitable sign should be affixed to part of the scaffolding structure in a position that can be clearly read by a person at ground level. See Annex 3

:

9. Scaffold Design

The Work at Height Regulations 2005 require that scaffolds be designed and constructed to a generally recognised standard, or be designed and calculated to ensure that it is fit for the intended use and be stable and of adequate strength. In simple terms, scaffolds should be erected in accordance with

British and/or European standards, national industry guidance or manufacturers' instructions. Adequate planning should foresee whether it would be possible to conform to these generally recognised standards and, if this is not possible (or as the standard dictates), then appropriate design is required.

Design and calculations

The level of design input required can vary significantly; from full engineers' calculations and drawings and design checks for complex or unusual structures, to a sketch showing a simple design detail to confirm a minor variation from the recognised standard.

Design competence

When selecting a scaffold design engineer a combination of engineering qualifications and scaffolding industry experience is required to be deemed competent.

Generally recognised standards

BS EN 12811, Part 1: 2003 *Temporary Work Equipment: Scaffolds Performance requirements and general design*, is a relatively new standard within the UK and represents a significant change to the traditional way that scaffolds have been designed and constructed. Officially the British Standard for traditional tube and fitting scaffolding, BS 5973: 1993 has now been withdrawn as it conflicts with the new European Standard. This does not mean that scaffolds designed and erected to the criteria that were set out in BS5973 are unsafe*. Such scaffolds may be regarded as meeting the minimum requirements of the Work at Height Regulations 2005, that require strength and stability calculations to be carried out for each scaffold unless it is assembled in conformity with a generally recognised standard configuration.

Proprietary system scaffolds (e.g. Kwikstage, Cuplok, Haki, Layher) have to be designed and tested in accordance with BS EN 12810 and BS EN 12811: 2003. All manufacturers must provide detailed information for the safe erection and use of prefabricated scaffolding systems, usually in the form of instruction manuals and technical files. These instructions

should include standard configurations and maximum loads that can be applied. Where the instruction cannot be adhered to, design advice should be sought from the manufacturer. Copies of manufacturers erection guides/ instruction manuals plus information on tie patterns should be provided to each site where such systems are used.

Design control procedures

Scaffolding contractors must ensure they make suitable arrangements to:

- control the issue and use of drawings,
- manage variations to the design,
- ensure the competence of scaffolders,
- provide adequate supervision for the erection in accordance with the design, and
- ensure special arrangements for commissioning and handing over designed structures.

Designers' consideration of hazard and risk

Designers of the associated permanent structure must consider temporary access as part of their design considerations under the Construction (Design and Management) Regulations 2007.

Scaffold design engineers should carry out design risk assessments for temporary works and communicate information on significant residual risks and/or hazardous sequences of work where these are not obvious or outwith the normal sequence(s) of erection and/or dismantling. One effective method of achieving this is by providing warnings or indications on drawings.

10. Guidance on Stability, Bracing and Testing During Scaffolding Works

Scaffolds are only rarely independent structures. General practice with tube and fitting scaffolds is to attach ties at a frequency of every other bay and every other lift (approx. every 16m²). Guidance on alternative tie patterns can be found in NASC Guidance TG 20 – *Guide to good practice for*

scaffolding with tubes and fittings. Ties should be coupled to the scaffold as close to the junction of standard and ledger (node point) as possible. At least 50% of the ties should be attached to ledger-braced standards. This assume the use of positive or two-way ties. Where friction or one-way ties are used, the numbers and spacing may be different.

With system scaffolds, tie frequencies vary significantly and manufacturers instructions should be followed.

Tie Patterns

The tie pattern will be determined by various factors such as the location of the scaffold, the height of the scaffold, whether sheeting or debris net required, etc. Ties should be installed and proof tested progressively during the erection process. (Ref NASC TG20).

System scaffolds have pre-determined tie frequencies and manufacturers' instructions should be consulted.

Selection of Ties

Due to the different nature of structures there are a variety of different ties that can be used.

The stability of a scaffold is dependent, among other things, on the security of the ties used to tie it to the structure that is being worked on. The type of tie and anchor should be selected to suit the nature of the structure and the material to which the anchor(s) will be fixed.

Ties are a means of resisting inward and outward movement of scaffolds. The connection between the tie and the scaffold must be made using 'right angle couplers'. The strength of the structure being tied to must be established at the design stage. If there is any doubt about the suitability of the structure, or the material into which the anchor will be fixed to take the expected loads, preliminary tests should be carried out. Note; such tests should be relevant to the structure as a whole and not concentrate on the specific parts of the structure into or onto which anchors are to be fixed. Further guidance can be found in NASC Guidance document TG 4 — *Anchorage Systems for Scaffolding*.

Ties - General Rules

- Ideally, ties should be left undisturbed for the life of the scaffold
- *Moveable ties* should be replaced prior to moving
- Planning is essential as tie removal will make the scaffold less stable
- The spacing and number of ties should be specified in the design and stipulated in the scaffold plan

Preliminary tests should be carried out to check the suitability of individual types of anchor in the substrate into which they are to be fixed to determine allowable loadings. (Ref NASC TG4).

Proof tests are needed to check that the anchors in use at a particular job have been installed correctly. A minimum of 3 anchors should be proof tested and at least 5% (1 in 20) of the total job. If any anchors fail the test, the reason should be established and the rate of proof testing at least doubled (at least 6 anchors and 1 in 10 overall). If significant numbers fail this phase of testing, then the overall safety margin is in doubt and the specification and installation method should be reviewed before the scaffold is taken into use. (Ref NASC TG4).

Through ties

These are put through openings in the structure, such as windows. A vertical inside tube crossing the opening is attached to the scaffold by a transom and a crossing horizontal tube on the outside called a bridle tube. The gaps between the tubes and the structure surfaces are packed or wedged with timber sections, to ensure a solid fit.

Box ties

These are used to attach the scaffold to suitable pillars or comparable features. Two additional transoms are put across from the lift on each side of the feature and are joined on both sides with shorter tubes called tie tubes

Lip tie

When a complete box tie is impossible an L-shaped **lip tie** can be used to hook the scaffold to the structure, to limit inward movement an additional transom, a *butt transom* is placed hard against the outside face of the structure.

Reveal tie

These are the least 'invasive' ties. They generally use an opening in the structure but employ a tube wedged horizontally in the opening. The reveal tube is usually held in place by a reveal screw pin (an adjustable threaded bar) and protective packing at either end. Transoms tie tube links the reveal tube to the scaffold. Reveal ties are not well regarded. They rely solely on friction and need regular checking so accordingly, should only be regarded as suitable for light duty.

Anchor ties

This section describes some of the more commonly used anchors. However, the reader should be aware that new fixing solutions are becoming available all the time. The reader is advised to consult manufacturers and suppliers on the suitability of the anchor system selected for the proposed duty, taking into account the relevant loads and the substrate into which the anchor will be fixed. An obvious example is that drop-in anchors and expanding sleeve anchors are not suitable for hollow bricks, rather, they are designed for use in solid masonry or concrete.

Expanding Anchor Tie

Also called *bolt ties* anchor ties are fitted into holes drilled in the structure. (Ref NASC TG4 - *Anchorage Systems for Scaffolding*).

Common examples of anchor ties are:

- Ring bolts screwed into expanding wedge sockets, and
- Self-tapping anchors that cut their own "thread" in pre-drilled holes in the substrate.
- The attachment point of such ties to a scaffold should be not more than 300mm from a ledger-braced standard and as near a node point as possible.

Nylon/plastic plugs are sometimes used in conjunction with ring screws as shown below, because they impose lower stresses on the substrate than expansion sockets. Such ties are for light duty only and the nylon/plastic plugs should not be re-used.

Note: 100% testing is needed when using plastic inserts

If it is not possible to use a safe number of ties, **rakers** can be used for unsheathed scaffolds up to 6m high. These are single tubes attached to ledgers at every other standard/bay, extending out from the scaffold at an angle of less than 60° to the horizontal and securely founded. A transom at the base then completes a triangle back to the base of the main scaffold.

Note: rakers only prevent a scaffold from falling outwards. To prevent movement in other planes, kentledge and buttresses may be required. In such cases and other than described above, design advice must be sought.

Bracing

- Bracing is essential to stiffen the structure .
- On an independent scaffold, the ledger bracing is generally fitted from ledger to ledger on alternate bays at alternate pairs of standards.
- Façade bracing is either continuous and runs diagonally up the outside face of the scaffold at between 35 ° and 55° or zig zags upwards across the outside face of one or two bays.
- For a long façade, bracing should return to the bottom of the scaffold. The number of un-braced bays should not exceed 5 in total.
- Façade bracing is required every six bays
- Joints are only allowed in tubes used for façade bracing. Where this is done :
 - Tubes should be lapped by 300mm and joined with two parallel couplers,
 - Class B sleeve couplers or other couplers may be used if they are proven capable of sustaining the applied load,and
 - An expanded pin should be employed to align the tubes to be joined and the joint should be lapped by a butt tube with a fitting on either side of the joint.
- For scaffolds higher than 8m, when fitted with façade bracing across a single bay only, additional plan bracing is required every twelve bays every four lifts. If

the facade bracing is installed across two ledger-braced bays, then a plan brace will not be required.

- If a scaffold cannot be tied on every standard at the tying level as required by the scaffold plan, plan bracing can substitute for a missing tie. However, the decision to do this must be made by the scaffold designer since doing so will have implications for loadings on adjacent ties.
- Bracing should not be removed to allow passage of materials

Working platform loads for basic scaffold designs are set out in Table 1 of NASC's TG 20. This matter should have been considered with the client at the design stage. The working loads of the scaffold platforms should be confirmed to the Client when the scaffold is handed over.

Where the configuration of the scaffold and its ties deviate from that for a basic tube and fitting scaffold, or standard layouts and tie patterns for a proprietary scaffold, then engineering advice should be sought..

11. Security Procedures

Scaffold access should be secured when not in use to prevent un-authorised access onto scaffolding. Ladders used for access at the base of the scaffold should be kept in a secure storage area or removed from site completely when the scaffold is not in use.

Consider enclosing the base of the scaffolding to prevent climbing, especially near occupied premises.

Fence off the area and provide alternative routes, which are clearly signposted and avoid additional crossing of the road wherever possible.

Consider the environment, particularly with respect to pedestrian and vehicle movements and during school holiday periods.

Debris chutes should be removed or protected either by providing lids or covers etc.

All tunnels should be adequately lit. Consideration should be given to providing windows of suitable, transparent material and escape routes in long tunnels.

Arrangements should be in place to maintain security measures.

Examples of what are considered to be acceptable standards are shown below:

Comments please as picture to the left shows enclosed area which could lead to public order issues, picture on the right shows timber baulks (not standard Traffic Management Equipment and another example of an enclosed area).

12. Physical Protection

Scaffolding operations and the use of scaffolding in public areas can present significant hazards to the general public and users of the highway. High standards of physical protection, effective systems of work and supervision are required. This section highlights some of the main physical protection measures that must be considered for scaffolding on the public highway or other public access areas (e.g. pedestrian streets, courtyards, public parks and gardens etc).

Vehicles

Consideration should be given to providing additional measures to minimise the risk of vehicle impact. For example: restricting the speed of vehicles and/or diverting traffic away from scaffolds; installing adequately anchored timber baulks as physical protection at vulnerable points. Care should be taken to avoid risk from projections at higher levels, taking account of the potential height of passing vehicles. Thus there

should be no projections over the highway in the lower 6m of the scaffold.

Scaffolding Operations

During the erection, altering and dismantling of scaffolding, measures should be taken to exclude the public from the work area and where possible a distance around it. The principle hazards are falling materials as they are handled by the scaffolders and structural stability of the scaffolding during erection, altering or dismantle. The work should be adequately planned and the risks assessed to include all necessary measures to protect the public. The measures that should be considered include:

- Segregation of work area using barriers, fencing or hoarding.
- Temporary pavement or street closures (in accordance with Highways Act, **road Traffic Regulations Act (chapter 8)** and Local Authority requirements).
- Quiet hour working where pedestrians and vehicle traffic is reduced.
- The use of suitable pavement frames and protection fans so work can continue above.
- Warning signs
- Use of temporary traffic management controls during hazardous operations (**Chapter 8 traffic management, or police**)

Some specific protection measures will be specified in the scaffold permit and must be strictly adhered to. The work should be adequately supervised to ensure that the measures agreed are implemented satisfactorily and maintained throughout the duration of the works. (See the table in Section 4).

Pedestrian Access, Frames and Gantries

Where pedestrian access is permitted beneath a scaffold, the following measures need to be taken:

Visibility and access for persons with disabilities:

Effective measures should be taken to ensure all elements of scaffolding that may be a hazard to pedestrians are clearly visible. There should be no projecting tubes or fittings that may constitute a risk to people or vehicles.

It should be noted that persons with visual impairment are at greater risk. Therefore measures should be taken to avoid these risks e.g. provision of tapping boards at ground level where the scaffold creates a sharp change in direction of the pedestrian route.

Wherever possible, walkways should be kept clear of obstructions and changes of level that would create hazards for wheelchair users should be avoided.

Protruding tubes etc.

Ensure there are no protruding tubes or fittings that could cause pedestrians injury or damage property e.g. clothing. Use timber panelling (in accordance with the hoarding and panelling requirements), protective cladding, tube end-caps and thread caps on fittings, as appropriate. Where access proves hazardous e.g. diagonal braces causing an obstruction, then access must be restricted with guardrails or other suitable barrier.

Head clearance

A minimum head clearance of 2.4 metres (8 feet) should be maintained.

Note:

- The maximum height of base lift for pedestrian access of a tied independent scaffold is 2.7 metres unless otherwise designed.
- Where ledger bracing is omitted from the bottom lift, e.g. as in a pavement lift, the scaffold must be tied at the top of the bottom lift or stabilised by other means.

Scaffold width

The minimum width of a scaffold base with pedestrian access beneath is 1.1m unless otherwise agreed. However, this is only suitable for areas with low pedestrian volume. In areas

with high pedestrian volume such as high streets and shopping areas, this width may need to be up to 3.5metres. In such cases pedestrian frames and gantries to support structures or temporary office accommodation needs to be specially designed.

For system scaffolds the minimum width of pedestrian access should be 1.4m

Crash decking

To prevent debris falling from the scaffold into the pedestrian access below, the lift above the pavement access, frame or gantry must be close-boarded for its full width and abut to the building/hoarding etc. The risks from falling objects need to be assessed at the design stage. A double layer of scaffold boards should be used with an impervious membrane between (e.g. heavy gauge plastic sheeting). Hard boarding or expanding foam may also be applied to smaller or odd shaped gaps to prevent objects falling through. Drainage will also need to be considered.

When using some system scaffolds, depending on the type of boards or deck used, it may be necessary to fix plywood to the bottom lift.

Scaffold Fans, Netting & Sheeting

Falling objects from scaffolding presents a significant risk of injury to the users of the highway. Suitable and sufficient scaffold fans/netting/sheeting need to be provided to prevent objects falling from scaffolding and also to protect the public should something fall.

The design of fans will depend upon the nature of materials likely to fall (e.g. paint drips, masonry, scaffold components, construction materials etc.). Fans must be designed and constructed in accordance with NASC Guidance Note TG.20.

13 Raising and Lowering Materials

The methods used to raise and lower scaffolding components will be determined by the safe system of work, i.e. undertaking risk assessment, producing method statements etc. the extent & type of structure being worked on and the equipment available.

The methods available will generally fall into one or other of the following categories:

- Handballing (“chaining”)
- Light line (“hand line”)
- Gin wheel and rope
- Forklift truck
- Tower crane
- Goods hoist

Below is guidance for each of the methods. Legislation and company policies may dictate other methods.

Handballing

Sometimes called “chaining”, this is the method normally adopted on the first few lifts of a scaffold. The team will form a chain up the face of the scaffold & pass tubes & boards from one to another.

It is imperative that operatives wear a safety harness and are attached to a suitable anchor point via their lanyard when necessary during this operation. When passing the equipment both hands should be used at all times to maintain full control of the equipment. A good method of communication to use is for the person receiving the equipment to call “*my tube and board*” when they are ready & in control.

Light line

Sometimes called a “hand line”, these are often used on scaffolds. Tubes, boards or sacks of fittings are tied to the lower end of a 13 mm fibre rope (suitably tagged/identified and inspected with relevant certificates) and then hauled up by hand. When raising or lowering materials, scaffolders should be clipped on via a safety harnesses with lanyards suitably attached to the scaffold. Preferably, a safe handling platform should be created with double handrails, including stop ends so that there are no gaps greater than 470mm through which a scaffolder could fall.

In all cases it is essential the operative adopts a safe body position when lifting and lowering. This involves using a standard for support, one leg being placed behind the standard to act as an anchor and prevent the lifter from overbalancing.

Knots

The main two types of knots used to secure equipment are the timber hitch to secure scaffold boards and the rolling hitch to secure scaffold tubes.

Fitting Bags

All loose scaffold fittings should be raised or lowered in a fitting bag with the appropriate safe working load (SWL) marked on them, and appropriate certification regarding their testing and examination.

Gin wheel and rope

Commonly used to raise and lower materials which are tied to the end of an 18 mm diameter rope (**suitably tagged/identified and inspected with relevant certificates**), passed over a single wheel pulley. The gin wheel (pulley), suitably tested with relevant certificates, is fixed to a short horizontal cantilevered tube. The material is then hauled up by the person on the ground to working level. Two types of gin wheel available are the "ring" type and the "hook" type. The ring type is preferred since it is designed to fit over a scaffold tube. The hook type differs at the point of suspension, having a hook rather than a ring. It has the disadvantage of having to be moused or fitted with a safety catch.

The gin wheel is usually suspended from a cantilevered tube. This should be properly fixed with right angle couplers to both inner and outer standards approximately 2 metres above the landing place. If the cantilevered part of the tube is unsupported, the point of suspension should not extend more than 750 mm. Check fittings should be fixed either side of the suspension point to ensure the gin wheel cannot move.

The fibre rope should have a minimum diameter of 18 mm and a stopper knot (usually a figure of eight knot) tied near the ends so that it cannot run through the gin wheel.

The maximum load that should be raised or lowered by a gin wheel at any one time is 50 kg. The load imposed on the scaffold will be double that what is being lifted. Reference should be made to the Manual Handling Regulations.

Care should be taken particularly when lowering materials. If

the weight is too great either the person lowering the load will weigh less than the load and will be pulled off their feet; or the complete assembly may collapse.

Fork lift truck

These are frequently used to raise and lower scaffold material to and from the scaffolding structure via scaffold loading bays. It is essential that the fork lift truck driver is made aware of the mass of the load. He should also know the load bearing capacity of the scaffold loading bay (which should be designed).

When a fork lift truck is used for loading a platform, a second front ledger is sometimes fitted, in front of, and below the main front ledger to provide extra protection from impact and as a "check fitting".

Tower crane

These are often used to raise and lower large loads of scaffolding material, during the construction of multi-storey buildings. The driver should be made aware of the weights involved again and it is essential to ensure that materials are deposited on specifically designed and designated loading areas.

Extreme care should be taken by the person receiving the load. The crane driver usually has only a limited control and the receiver can easily be knocked from the platform.

Goods Hoists

When employed in scaffold erection operations, these should only be used to raise or lower material that can be safely contained within the area of the hoist platform. This rule generally restricts the scaffolder to very short tubes, (transoms) and scaffold fittings however see NASC Guidance Note SG26 for guidance on long tube hoists.

Electric hoists, used for the transport of goods and personnel, must not be attached to a basic scaffold, but independently tied to the permanent structure.

14 Guidance on Lighting for Scaffolds

and Hoarding

Local Authorities are empowered under the provisions of the Highway Act 1980, to require the erection of a hoarding at the site of building operations carried out in any street and, where necessary, the provision of a platform with handrail to serve as a temporary footway.

Lighting

- All scaffolds that are erected on the highway must be adequately lit, with the lights positioned at a height and spacing as agreed with the Local Authority.
- Red lighting must be used on the corners and at changes of direction.
- If the scaffold is situated on a pedestrian walkway white lights must be used and if on traffic side (within 0.5 metres of the kerb face) amber lighting is to be used.
- A safe pedestrian walkway must be provided at all times.
- Clips and other fittings must be placed so as not to cause a risk to any pedestrians.
- All lighting must be checked and maintained to ensure that it is effective, particularly during hours of darkness.

15. Electrical Hazards

The nature of scaffolding operations greatly increases the risk of coming into contact with electric current from overhead electric power lines, lighting and alarm systems and lightning strikes.

Work near to or beneath overhead electric power lines should be carried out after the lines have been made dead, or otherwise made safe, to eliminate the risk of electric shock. Where this is not possible it should be recognised that scaffold structures erected underneath live overhead lines have increased risk because the safe clearances are reduced.

In cases where it is necessary to work near to, or beneath live

overhead lines, the owner[4] of the line(s) should be consulted about the proposed working methods. Additional precautions will be required when erecting and dismantling to avoid the use of components that can reach high enough to encroach within a safe distance from, or make contact with the overhead line[5].

Where lighting is fitted to scaffolds, then the metal parts of the scaffold should be bonded and earthed to prevent stray current paths. The use of low voltage equipment and supplies is good practice. Where such equipment is powered by transformers connected to 240volt supplies, leads live at mains voltage should be kept as short as possible.

All scaffolding structures that are at risk from lightning strikes should be properly earthed, particularly those on the roofs of high buildings. Butting on to the building surface is not adequate to ensure that the lightning will not pass through a person's body if he is in contact with the metal framework.

Scaffold associated with power line construction or adjacent to power lines or electrical transmission feeders must be earthed.

Advice is available in BS 6651:1999 - '*Code of practice for the protection of structures against lightning*' ,NASC Guidance Note, SG3 - '*Earthing of Scaffolding Structures*' and HSE Guidance Note GS6 - '*Avoidance of danger from overhead electric power lines*'.

Advice on avoiding danger from underground services, whilst earthing, is available in HSE Guidance HSG47 - '*Avoiding danger from underground services*' .

16. Guidance on Scaffolding Works and Asbestos

Ancillary Licence

An Ancillary Asbestos licence issued by the HSE, Asbestos Licensing Unit (ALU) will be required by the scaffolding organisation for the erection, modification, maintenance, inspection or dismantling of a scaffold if:

- The scaffold will form any part of the framework or all of the support from which an asbestos enclosure will be built for the purposes of "working with asbestos".
- The scaffold is to provide access/egress (on asbestos or otherwise) where it is foreseeable that asbestos is likely to be disturbed by the scaffolding activities.

A licence will not be required for normal scaffold operations on a location that is likely to have asbestos present unless the work falls into the above criteria. Further guidance on when work must be done by ancillary license holders can be found in HSE's Asbestos Licensing Group (ALG) Memo 04/08 (see references).

If the company is undertaking the scaffolding works **and** the asbestos related works, there is only a requirement to notify the enforcing authority **once**; stating both the scaffolding and the asbestos details.

However, if the scaffolding company is acting as a sub-contractor providing the scaffolding **only** and it falls into the above criteria, they will need to notify the scaffolding works separately via an ASB5 notification form.

Notification of scaffolding work must be given to the relevant enforcing authority **14 days prior to commencement**; documents to be included in the notification are the ASB5, Plan of work (method statement) copy of asbestos licence.

Training

Asbestos Awareness Training **is required to be given to all employees whose work could foreseeably expose them to asbestos. This should include:**

- Hazards of asbestos and Asbestos related diseases
- The types, uses and likely sources of asbestos in buildings and plant,
- The general procedures to be followed in the event

of an emergency, and

- How to avoid the risks from asbestos,

Scaffolders involved in work that requires an asbestos license will need much more extensive training, including in addition to the above:

- How to recognise that exposure has occurred and decontamination procedures
- How to wear and remove disposable overalls to prevent contamination
- How to select wear and maintain suitable respiratory protective equipment
- The responsibilities of all parties involved in work with asbestos.
- Risk assessment and Plans of Work
- Emergency procedures
- Guidance on enclosures – what they are for and how they are built

Further guidance can be found in HSE guidance L 143 – *Work with materials containing asbestos* and HSG 247 - *Asbestos: The Licensed Contractors' Guide*.

When to Notify Work with Asbestos

1. Is the Scaffold an integral part of the framework?
2. Is the Scaffold to provide access to an enclosure or where asbestos is disturbed or encountered?

Could any scaffolding component come into contact with the asbestos?

Notify/Asbestos Licence Required

No

No

Yes

Yes

Is it likely that asbestos will be disturbed as a result of contact?

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Yes
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NOT foreseeable for
asbestos to be
disturbed

**Notify/Asbestos
Licence Required**

Not foreseeable that asbestos is
likely to be disturbed

**Not notifiable/No Asbestos
Licence Required**

ANNEXES

Powers and Duties
Emergency Procedures
References

To be populated by organisations making use of the protocol

ANNEX 1 **Powers and Duties**

Local Authority

(To be added).

Further discussion required with CW&C Legal Team
in relation to enforcement methods from:

Highways

Building Control

Conservation

Health and Safety Executive

(To be added).

ANNEX 2 Emergency Procedures

In the event of an emergency, the following contact numbers
may prove useful:

Local Authority

(To be added).

Emergency Contact Numbers to be added.

Health and Safety Executive

(To be added).

ANNEX 3

Information to be displayed on scaffolds

The Principal Contractor, or person in control of the site, is required to make arrangements to ensure that the following information is made clearly visible at all times on site, in the form of an information board or sign. Information to be contained on that sign must include the following:

- Local Authority with name who has given the authority
- Name of Client
- Name of Principal Contractor and Scaffold Company
- Emergency 24 hr contact number
- Number of ties, *(Optional*)*

EXAMPLE:

Amend the Local Authority box above to allow inclusion of licence document ANNEX 4 Competence Schemes

Construction Skills Certification Scheme (CSCS)

CSCS is 'owned' by the main industry organisations, such as the Major Contractors' Group. Many large clients, including many local authorities, are behind the scheme and an increasing number are demanding the proof of competence that CSCS offers before they allow firms to tender or workers onto their sites.

Construction Industry Scaffolders Record Scheme (CISRS)

CISRS aims to ensure that operatives erecting, altering or dismantling scaffolds are properly trained and have sufficient experience to carry out work safely and correctly. The scheme is affiliated to CSCS. At present, there are over 27,000 scaffolders registered with CISRS.

CISRS issues record cards to operatives who have satisfactorily completed the required training, gained appropriate experience achieved the relevant NVQ/SVQ and passed the industry recognised Construction Skills Health and Safety Test.

There are five types of cards:

- **Labourer Card** For operatives who will only be involved with labouring duties, e.g. moving materials. Under the CISRS Scheme an operative who is required to carry out any scaffolding work must hold a Trainee Card or above.
- **Trainee Card** For operatives working towards the Scaffolders qualification. Under the CISRS Scheme a Trainee card holder must work under the supervision of a qualified scaffolder.
- **Scaffolder Card** For operatives who have completed the required training and are engaged in erecting, dismantling and altering scaffolds.
- **Advanced Card** For experienced operatives who have completed the required training to enable them to erect, dismantle and alter scaffolds of a complex nature.
- **Supervisor Card** For operatives involved in supervising scaffolding work on site. Holders may not necessarily be qualified scaffolders.

Labourer card

In order to obtain a Labourer Card, the operative needs to have:

- Passed the Construction Skills Health and Safety Test
- Completed the CISRS Labourer's Application/Employer Endorsement Form

The Labourer Card lasts for 5 years. It can be renewed by completing the Construction Skills Health and Safety Test.

Trainee card

In order to obtain a Trainee Card, the operative needs to have:

- Passed the Construction Skills Health and Safety Test
- Completed the CISRS Trainee Application/Employer Endorsement Form

Since November 2006 initial Trainee Cards last for 18 months. Within this period the operative must commence CISRS training and complete, as a minimum, the CISRS Part1 Course. When the initial card expires, providing the operative has completed CISRS Part1 training, the card can be renewed for a further period of 18 months. This will allow the trainee sufficient time to complete CISRS Part 2 training and Level 2 NVQ/SVQ.

Scaffolder card

In order to obtain a Scaffolder Card, the operative needs to have:

- Completed CISRS Part1 & Part 2 courses, or completed the Assessed Route of Entry course at an Accredited Centre.

{Note: The Assessed Route of Entry for experienced workers was withdrawn in June 2006}

- Achieved an NVQ/SVQ Level 2 in Scaffolding (where training started after 01 September 1996).
- Passed the Construction Skills Health and Safety Test

Scaffolder Cards expire 5 years after the date of issue and can be renewed by passing the Construction Skills Health and Safety Test.

This category was previously known as "Basic Scaffolder".

Advanced Scaffolder card

In order to obtain an Advanced Scaffolding Card the operative needs to have:

- Completed CISRS Part 1, Part 2 and Advanced Scaffolding courses at an Accredited Centre, or completed an Assessed Route of Entry course at an Accredited Centre.

{Note: The Assessed Route of Entry for experienced workers was withdrawn in June 2006}

- Achieved an NVQ/SVQ Level 3 in Scaffolding (where

training started after 01 September 1996).

- Passed the Construction Skills Health and Safety Test

Advanced Scaffolder Cards expire 5 years after the date of issue and can be renewed by passing the Construction Skills Health and Safety Test.

Supervisor card

In order to obtain a Supervisor Card the applicant needs to have:

Completed the CISRS 5-day Supervisory Course

Passed the Construction Skills Supervisory Health and Safety Test

System Scaffolding

The CISRS Scheme has recently been expanded to include courses in prefabricated system scaffold systems. The route to qualification mirrors the above system that was originally designed for tube and fitting scaffolding.

On-Site Assessment and Training (OSAT)

The OSAT scheme is only for experienced workers. The purpose is to assess their existing skill, Knowledge and experience with a view to obtaining qualifications to prove they can do the job. The process is carried out by accredited assessors whilst the applicants are on site. This process can lead to an applicant obtaining a nationally recognised qualification such as an NVQ or SVQ, at a level appropriate to the his/her competence.

System Access –Fall Elimination (SA-FE)

SA-FE recognises and registers manufactures/suppliers of innovative safety, access & falsework-system equipment, requiring the generation of guidance against which training is then developed. SA-FE provides manufacturers and their clients' employees with training registration outwith their own, and other recognised schemes, or during the development or incorporation of their products into such schemes.

This includes the use of system scaffolding, collective protection products and processes, falsework, off- and on-site training. This ranges from safe use of basic temporary

equipment, to more complex configurations, applications and designs.

The needs of erectors, planners, safety inspectors, managers, supervisors, designers and users are included under SA-FE recognised manufacturer/supplier training and cards may be issued by SA-FE approved and registered companies following training. SA-FE Training is generally specific and will detail the limit of the product, configurations and or processes involved.

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ANNEX 5

Scaffold Protocol Listed Building

First Draft

Cheshire West Chester has some 3000 listed buildings. Timely and appropriate maintenance and inspection are crucial to maintaining this legacy so ensuring its survival for the enjoyment of future generations.

More stringent safety regimes rightly require the provision of a safe environment for working and inspection at height, usually by way of scaffolding structures. Today access specialists are required to demonstrate the integrity of such structures, usually by tying into the building using anchor bolts fastened into holes drilled into the masonry, which are drilled into the fabric of the structure on a regular grid determined by simple formulaic guidance.

Works that affect or have the potential to affect the special architectural and historic interest requires listed building consent. To undertake unauthorised works to a listed building is a criminal offence carrying penalties of up to 3 years imprisonment and/ or a £20,000 fine. Action may be taken to enforce remedies that make good unauthorised works. The unregulated boring of holes into listed buildings for the purposes of tying back scaffolds is considered to fall within the scope of these provisions.

Where listed buildings are concerned any damage is permanent and important facades and details scarred for ever, therefore scaffolding must be capable of being constructed without the need for major interventions into the historic

fabric.

In the case of listed buildings, contractors will always be required to provide detailed drawings of their proposals, together with supporting calculations.

In many instances because of the need to depart from standard formulaic design solutions, it will be necessary for special design engineers to be employed.

As damage to listed buildings is to be avoided at all costs all contract documentation should include a section on scaffolding.

Often the use of longitudinal bracing will reduce the need for physical connections to the building. Likewise the use of broad foundations weighted with kentilage can reduce the tying requirements.

Historic buildings often have basements extending beyond the building line and these might be unable to support scaffolding structure.

Where fixings have to be made to stonework, brickwork or timber framing it must be ascertained that the structure is adequate for the purpose. Timber framed structures may be tenuously connected together with infill panels unable to withstand significant pull loads. Likewise brick facades might conceal and encase older structures and behave in a manner that is not fully understood on cursory inspection, whilst the outer leaf to Georgian frontages often in Flemish bond often proves to have little connection to the inner leaves.

It is preferable to tie through windows, within reveals or around parts of the building such as stacks and balustrades – Provided that the interiors do not contain fine plaster or panel work to the walls through ties that hook back to the inside face of the wall are, in the case of sash windows simple to use, although in the case of casement windows a light might need to be removed for the duration.

Many windows still contain historic cylinder and crown glass and therefore under no circumstances should panes be smashed out to reduce time on site.

Reveal ties, using screw jacks to grip against the reveals must be given proper protection to ensure they cause no damage.

Where the scaffold design is the hands of a specialist engineer, and direct connection into the fabric can not be avoided then their numbers should be limited to the absolute the minimum necessary. The location of such interventions must be agreed at the planning stage with the Conservation and Design Team.

The preparation of the bores should be in the hands of a specialist able to extract cores, each location being indexed and orientated to allow precise reinstated on striking of the scaffold.

Ties should be of the expanding neoprene variety readily removable on striking.

Under certain circumstances where the works form part of a phased programme anchors might be agreed to be retained such anchors must be of stainless steel.

All tube ends that either touching a wall or within 25mm of it should be capped.

Where exterior or interior features of interest may be damaged on erection or striking of scaffolds adequate protection must be provided

Where protective sheeting is to be provided this must be fireproof, as this can provide a route for the rapid spread of fire

John Healey. June 2011

ANNEX 6

References

Acts

Highways Act, 1980 (as amended)

Road Traffic Act, 1991

Road Traffic Regulations Act, 1984 (as amended)

Disability Discrimination Act, 2003 (as amended)

Regulations

Town and Country Planning (Control of Advertisements) Regulations, 1989

Work at Height Regulations, 2005 (as amended)

Construction (Design and Management) Regulations, 2007

Guidance

GS6, *Avoidance of danger from overhead electric power lines* (HSE 2004)

HSG 47, *'Avoiding danger from underground services'* (HSE, 2003)

HSG 150(rev), *Health and safety in construction* (HSE, 2006)

HSG 151(rev), *Protecting the public: Your next move* (HSE, 2002)

HSG 247 - *Asbestos: The Licensed Contractors' Guide* (HSE 2006).

L 143 – *Work with materials containing asbestos – Approved Code of Practice and guidance to the Control of Asbestos Regulations 2006* (HSE 2006).

ALG Memo 04/08 – Asbestos Licensed Scaffolders available via HSE website at <http://www.hse.gov.uk/aboutus/meetings/committees/alg/>

HSE Information Sheets

CIS10(rev 4), *Tower scaffolds* (HSE, 10/05),
<http://www.hse.gov.uk/pubns/cis10.pdf>

Standards

BS EN 1263, Part 1: 2002, *Safety nets – safety requirements – test methods*

BS EN 1263, Part 2: 2002, *Safety requirements for erection of safety nets*

BIP 2118:2007, *Protection against lightning. A U.K. Guide to the practical application of BS EN62305*

BS EN62305 Part 1 *Protection against lightning – General principles*

BS EN62305 Part 2 *Protection against lightning – Risk management*

BS EN62305 Part 3 *Protection against lightning – Physical damage*

BS EN 12810-1: 2003, *Facade scaffolds made of prefabricated components. Products specifications*

BS EN 12811-1: 2003, *Temporary Work Equipment: Scaffolds Performance requirements and general design*

BS 5975:2008 – *Code of Practice for temporary works procedures and the permissible stress of design work*

Industry Guidelines

NASC Guidance Notes

SG3:02 - *Earthing of Scaffolding Structures*

SG4:05 - *The use of fall arrest equipment when erecting, altering and dismantling scaffolding*

SG7:02 - *A Guide to Risk Assessment.*

SG23:03 - *Safe System of Work for Birdcage Scaffolds*

SG24:06 - *A Guide for Scaffold Plans.*

SG26:05 - *Scaffolding & Hoists.*

TG4:04 - *Anchorage Systems*

TG15:03 - *Site hoardings and signboards*

TG20:08 - *A guide good practice for scaffolding with tubes and fittings* REVISION

NASC Technically Speaking – Issue No 8 April 2006

Addresses

Construction Industry Training Board (National Construction College), www.citb.co.uk/ncc

Health and Safety Executive, www.hse.gov.uk

National Access and Scaffolding Confederation (NASC), www.nasc.org.uk

* generally regarded as the road plus pavements – for definition see the Highways Act 1980

[1] The National Access and Scaffolding Confederation (NASC) is a national representative employers' organisation for the access and scaffolding Industry, with members operating from locations throughout the UK.

[2] A local or geographically based association of scaffolding companies, e.g. The Association of Northern Scaffolding Contractors (ANSC) and Safe Access – Fall Elimination (SA-FE)

[3] The validity of a CISRS card can be confirmed by contacting

the **CISRS Helpline on 0870 417 7223** and **SA-FE** cards
can be checked via **01302 322251** or via web-site
www.safeassociation.co.uk

* View expressed by HSE and NASC (ref. NASC Technically Speaking Note
No. 8 D April 2006).

[4] Normally the local Distribution Network Operator.

[5] Or going close enough to it to cause flashover.

* Some Local Authorities/Scaffolding contractors prefer to include information
on the number of ties used

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