

Working at Height

Code of Practice: Safety in the Domestic Replacement Window Industry



The principle of fall prevention and the reduction of risk are based on a simple hierarchy that must be followed systematically and only when one level is not reasonably practicable may the next step be considered. Where it is reasonably practicable to prevent a fall, precautions should be taken to do so. It is not acceptable to select work equipment from lower down the hierarchy in the first instance.

SCOPE

These guidelines are aimed at persons working within the replacement window sector, including the removal, installation and trimming/sealing of windows in domestic premises. They have been produced in conjunction with the Health and Safety Executive (HSE) and represent good practice. They are not intended to cover the requirements for the removal or installation of Roofline products.

ENDORSEMENT

This Code of Practice has been developed by the Glass and Glazing Federation with the support of the HSE to help those who are involved in planning, managing and undertaking work at height to make health and safety improvements in the domestic replacement window industry. This guidance may go further than the minimum you need to do to comply with the law.

DISCLAIMER

This Code of Practice is issued by the Glass and Glazing Federation for guidance, but without responsibility for any advice given or not given or for the consequences of acting in reliance on the advice. All liability on the part of the Glass and Glazing Federation arising in connection with this document is hereby expressly disclaimed.



Contents

General Principles for Working at Height	04
Control Measures	07
Considerations for Selecting Equipment	09
Safe Systems of Work	10
Use of Ladders	14
Specialist Equipment	18
Case Examples	19
Definitions	21
Further Reading	22



General Principles (GP) for Working at Height

The traditional approach to working at height in the replacement window industry has developed to involve a mix of access equipment for the removal and installation of windows. Current industry good practice is based on the general principles detailed on the following pages, which should be followed at all times:

GP1: Each job involving working at height must have a specific risk assessment carried out by a competent person (i.e. during a survey) prior to the start of work to ensure that all Health and Safety requirements have been identified. This must be recorded and will determine the most suitable access equipment and the control measures to be followed for that specific job.

GP2: Mobile towers will only be used for removal or installation where all of the criteria specified in page 12 of this document can be met. If they cannot then another form of access equipment must be used.

GP3: Ladders are a last resort and must only be used for removal or installation where the use of more suitable work equipment is not justified.

Where ladders are used, all of the criteria specified in the Use of Ladders pages 14 – 17 of this document must be met. If they cannot, then another form of access equipment must be specified.

GP4: Ladders must not be used for removal or installation above first floor window level or for the removal or installation of any Roofline product such as soffits or barge boards.

GP5: All access equipment must be fit for purpose, subjected to pre-use checks, inspected at suitable intervals and properly maintained. **It is recommended that equipment is formally inspected** at least twice per year or in accordance with the manufacturer's instructions. Appropriate records must be kept of inspection and maintenance activity.

GP6: Any access equipment, ladders, mobile towers, Mobile Elevating Work Platform (MEWP) or full scaffold, must be used in line with the safe systems of work defined in this document in addition to manufactures instructions.

GP7: Persons involved in any work at height must be competent through training and experience, or under the supervision of a competent person and be fully conversant with all appropriate procedures, work instructions, safe systems of work, pre-use checks and manufacturers' information. Certification may be required for certain equipment (e.g. MEWPs).

GP8: In addition to instruction and training on the Safe System of Work all persons working above ground level should be instructed in the specific risks and limitations that are associated with the equipment that they are required to use, of the dangers of falling and of the potential for serious or fatal injury, either to themselves or others, while carrying out works.



Testing Easidec Catwalk for Safe Working Load



Sheeted Scaffold



Mobile Tower Scaffold



Easidec Deck for overbalancing limits



Toe Board clip



General Principles (GP) for Working at Height

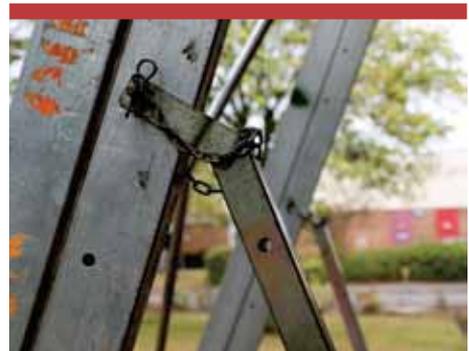
GP9: During all work at height, effective measures should be taken to protect/prevent other people from the dangers of falling materials. For example, netting, sheeting, toe-boards etc and the placing of barriers and safety signs to provide hazard warning information to any person who could be affected by such works as appropriate.

GP10: Careful consideration should be given to the selection of access equipment for any work at height in public areas, such as above shops or similar situations. For any assembled access equipment encroaching onto a public road or walk way, seek guidance from the local authority. Where adequate separation is not possible, special precautions such as debris nets or scaffolding fans may be required to protect members of the public from falling debris etc.

GP11: All working platforms must be maintained in a clean condition, with debris cleared on a regular basis. Strict attention must be paid at all times to tripping hazards caused by such debris and equipment to ensure they are removed promptly.

Supervisor briefs operator on safety equipment e.g. Stabilisers, 'R' Clips, adequate clearance on safety legs on easidec systems

GP12: Inclement weather such as rain, snow, ice, high winds etc. increases the danger associated with the use of any form of access equipment, all persons must take such conditions into consideration when assessing the risks involved in working at height, and if such risks are unacceptable, the works must be suspended until environmental conditions improve.





Control Measures

Safe systems of work must be produced and communicated for the safe use of each type of access equipment. These will define the reasonably practicable control measures needed to reduce risk to the minimum. Generic systems from which individual companies may develop their own safe systems of work are defined in this document. The main priorities in consideration of your control measures prior to starting the work should be:

1) Can the need for working at height be avoided?

As much work as is possible should be carried out from inside the building using window hoists or supports. For example, tasks such as drilling, knocking out, sawing and pulling should, so far as is reasonably practicable, be carried out from inside.

2) How will the existing window be safely removed and the new unit safely installed?

Take into account the weight, shape and centre of gravity of the window, either known for new unit or estimated for the existing. Assess the type and condition of the building and current window installation to establish the structural condition of the building and in particular the lintels without using invasive methods.

3) Where work at height must be carried out and access equipment is required for the site taking into account

What can be done to prevent any person falling a distance likely to cause personal injury. For example, erect a tower scaffold or Easi-Dec.

What can be done to prevent any person being struck by a falling object likely to cause personal injury. For example, additional equipment will be needed for work over conservatories.

4) What safe systems of work will need to be in place?

The hazards and associated risks have been identified and suitable control measures have been implemented.

Consider what Personal Protective Equipment (PPE) is required on site.

Consideration should be given to the rescue plan in the event of a worker becoming ill or injured.

All installers should be instructed in the Safe System of Work.

5) Review access equipment, site conditions and PPE while the particular job is in progress to ensure that measures are and continue to be adequate.

6) Control measures should be regularly reviewed throughout the life of any project to ensure that they remain effective.

Control Measures

To follow the hierarchy of control measures a full range of access and safety options must be available.





Considerations for Selecting Equipment

When selecting equipment for working at height the following should be considered (these considerations are to some extent built into the following sections regarding ladders, mobile towers and full scaffold). Companies should, however, consider all of these when developing their own systems:

- Ground conditions
- Environmental conditions
- Site access
- Existing structures on site
- Amount of weight placed on working platforms
- Volume of use
- Presence of overhead cables
- Space available on site
- Length of project
- Required maintenance of equipment
- Method for erection of equipment
- Material movement to working location
- Training required to work on site, including the loads being handled at height and any special precautions that arise

Safe Systems of Work Scaffolding

All scaffolding must be erected by a competent person, and prior to use a signed inspection certificate must be issued confirming that the equipment has been erected in accordance with construction legislation and is safe to use. British Standards on scaffold use (BS EN 12811-1: 2003) should be adhered to at all times. In the absence of a formal design, scaffolding should be erected to a recognised standard configuration e.g. NASC TG 20:08

Where work extends beyond a week (seven days) then weekly inspections of the equipment must be carried out to ensure that the scaffold is safe to use and a record kept. All users should carry out additional checks on the equipment on a daily basis before use. The check should include visual examination for:

- Stability and serviceability of all fixings/ tubes/base plate/sole boards.
- Ladder access/security.
- Identification of any obvious defect in the general structure.
- Serviceability of guard rails/toe-boards/ platform boards.

It is best practice to ensure that access to the scaffold is protected by a ladder gate.

On completion of daily works, access to the scaffold by non-authorized persons must be prevented. This can be achieved by removing the base access ladders or any other equally effective means.

Base areas should have a barrier or be fenced at all times to prevent injury through unauthorised access. In most instances, the equipment should be contained within the customer's property minimising the action to be taken. However, if general external access is identified, the erection of security fencing around the base may be warranted.



Scaff Tag



Safe Systems of Work Scaffolding

Any scaffolding encroaching onto a public road or walkway must only be erected after the issue of a local authority licence authorising such a structure.

The fitting of reflective tape and/or lighting up to a height of 2.5 metres on the structure, to provide a hazard identification, is a requirement in such instances. The provision and fitting of such items should be carried out by the Supplier in compliance with the terms of the licence.

The need for hoists/gin wheels must be specified to the supplier at the order stage to enable the appropriate design calculations to be produced. They should only be fitted by the supplier and should not be fitted retrospectively by the end user.

Strict attention must be paid at all times to the potential hazards associated with working from scaffolding. The hazards when sharing such scaffolding with other companies/trades increases the risks generated, and all personnel must maintain a high degree of safety awareness, especially in terms of housekeeping, the identification of moved or missing platform boards or guardrails and general working conditions.

In the event of strong winds, or damage (e.g. vehicle strike) additional mandatory inspections must be carried out on the scaffold equipment and recorded.



Conventional Scaffold



Access Gate to Platform



Safe Systems of Work Mobile Towers

All mobile towers must be erected as shown in the manufacturers' / suppliers' instructions, by a competent person, for example those trained to Prefabricated Access Suppliers and Manufacturers Association (PASMA) or an equivalent standard.

The equipment must be examined for defects or damage prior to assembly, and any defective components replaced prior to use.

As a "rule of thumb" the maximum platform height of the tower must not exceed 3 times the minimum base measurement e.g. tower length 1.5 metres, width 1.0 metres, maximum platform height – 3 metres, or ensure compliance with manufacturers' instructions.

The tower must be erected on a firm, flat base capable of supporting the combined weight of the assembly, personnel, tools, materials, and equipment. The Safe Working Load (S.W.L) for the tower should be marked on the framework, for the user's information. Where any doubt as to the stability exists e.g. on a grassed area or loose surface, scaffold or similar boards must be placed under the base/stabilisers/ outriggers to spread the load.

For enhanced safety, the mobile tower could be physically tied into the property, however it must be tied in at all times when the required height/base ratio cannot be achieved due to lack of ground space for the fitting of outriggers/stabilisers. The use of strong chains, wire cable or tubing attached to fixing anchors, or the fitting of tubing to through ties, is required in such instances. At no time must fixings such as ropes be attached to downpipes or similar weak structures.



Check Brakes are applied



Safe Systems of Work Mobile Towers

Equipment such as gin wheels or pulleys must not be fitted to lift or lower loads up the outside the tower due to the risk of the tower toppling or tubing breakage as towers are of a light alloy construction.

Lifting equipment can be used to lift or lower items internally within the tower, providing the proposals for lifting are agreed as acceptable by the tower manufacturer in advance and the lifting support beam and its attachment to the tower is designed by a competent person.

Wheels fitted to mobile towers must be locked in position prior to use.

During movement between locations, all equipment/materials must be removed from the platform. In addition, no personnel must remain on the platform during such movement.

Access ladders to the working platform must be attached to the inside face of the tower assembly and must provide safe access to the platform by use of a trap door where possible. Such trap doors must always be closed when working on the platform.

If a half platform is in use, a guard rail must be fitted, with toe-board, to prevent falling from the inside of the platform.

At no time should operatives climb on the outside of the tower scaffold.

All working platforms must be fitted with guard rails and toe-boards on all exposed sides. Where deck-boards are used to join two towers they must create a walkway width of at least 600mm or a working space of at least 850mm width and also be fitted with handrails and toe-boards.



Where platforms narrow or gaps increase, adequate protection against falling must be provided

Use of Ladders General

Ladders should only be used where the use of more suitable work equipment is not justified because of the low risk and short duration of use; or because of existing features on site, which you cannot alter, and which means ladders are the only suitable option.

This is because normal ladder use is at the bottom of the Work at Height Regulations hierarchy in that it does not prevent or minimise the consequences of a fall.

Low risk is not defined within the Regulations but in the case of ladders it is an assessment of all the risk factors (activity, site, user, equipment including accessories) which means that the risk of a fall is low and it is not reasonably practicable to use safer alternatives due to risk, site features, short duration etc. The term 'short duration' has been interpreted to mean a maximum of 30 minutes work at a single point before the ladder is moved to the next location. However, the deciding factor in establishing whether an activity is acceptable or not will be the risk rather than simply the duration of the task.

If a ladder is deemed to be the most suitable piece of equipment for the task, it must be serviceable in all respects.

Prior to daily use, all ladders must be checked for defects such as:

- Missing or damaged rungs.
- Cracks to the assembly.
- Damaged feet.
- Serviceability of locking or pulley devices for extensions.
- Bending or twisting of stiles and rungs.

All ladders must be long enough and positioned correctly, to allow persons a safe access to the working location without requiring over reaching. There must always be a minimum of three ladder rungs above the one that is being stood on.

Wherever practical, ladders should be tied, by both stiles, at the top. Where this is not practical, ladders should be fitted with suitable proprietary stabilisers both at the base of the ladder to prevent bottom slip and at the top of the ladder to prevent side slip. These are referred to as ladder stability devices and wall stand-offs.



Rojak Stopper



Easidac Spurs



Use of Ladders General

Ladders must only be used on firm level ground and must form an angle of approximately 75° to the horizontal, i.e. 1m out for each 4m of height. Such an angle minimises the potential for base slippage when in use. This angle is indicated on Class 1 ladders by a line or arrow on one stile, when this mark is vertical the ladder is at the correct angle.

To prevent over-reaching, the “belt buckle” of the installer must remain within the ladder stiles and both feet on the same rung. If work must be carried out further away the ladder must be moved.

The manufacturers’ instructions for the use of the ladder must always be followed.

The installer will always face the ladder and maintain 3 points of contact at the working position.

The correct footwear to give a secure grip must be worn at all times together with appropriate gloves to protect the hands.

Tools should be carried up and down the ladder using a tool belt or a hand line, and be carried in accordance with the Manual Handling Regulations (See “Manual Handling” Guidance on Regulations L23, HSE 3rd edition 2004).

Metal ladders should not be used when in the vicinity of overhead power cables. It is not necessary for a metal object such as a ladder to make contact with overhead power cables, arcing can lead to an electrical discharge, especially in damp or wet conditions, which could result in a severe or fatal electric shock to the user by transmission through the ladder. All ladders must be free of defects and properly maintained. It is recommended that equipment is formally inspected at least twice per year, by a competent person. An inventory should be kept and

inspections logged. Any repair work to ladders must only be carried out by competent personnel.

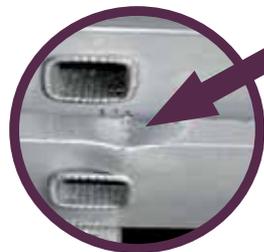
Only Class 1 or BSEN 131 ladders should be used; domestic ladders, with a red label are Class 3 and are not suitable for commercial work.



Easi-Dec stand off



Ladder with damaged stile



Stepladder with broken stile



Use of Ladders for Removal or Installation at First Floor Level

Ladder stability devices must be used and where practicable the ladder must be tied off to an appropriate location in order to prevent sideways movement of the ladder in either direction. Ladders are not suitable for heavy or strenuous work. If the task involves a worker carrying weight up or down a ladder, it will need to be justified by a detailed manual handling assessment. Any carrying of weights up ladders and especially tandem lifting imposes eccentric loadings on ladders which might lead to stability problems.

When carrying items up or down a ladder one hand must be free and that hand must be used to hold onto the ladder. Installers should be able to grip the load with their free hand either around the outside of the frame/glazing unit or through de-glazed spaces within the frame, leaving the other hand free to grip the ladder.

Heavy materials should be taken back through the building. Larger sections should be removed by at least two installers working together in accordance with a safe system of work.

During removal or installation as many tasks as possible should be carried out from inside. No item should ever be thrown down to the ground.

As far as is practical, during the installation of windows, the amount of material carried up a ladder should be kept to a minimum and as much of the product as is possible should be taken through the building. Before installing a window, it should be devented and/or de-glazed so as to reduce the weight of any part of the unit that has to be carried up the ladder to the minimum practical weight not exceeding the maximum load as detailed in the manual handling assessment. Parts that can be installed from inside the building should be installed in that way. It should be possible at all times for an installer to be able to place one hand on the ladder, as a secure handhold. Where larger units are

to be fitted it may be necessary to undertake a lift using two ladders (tandem lift). In this case all other sections of this Safe Systems of Work apply. In addition the unit should be devented and/or de-glazed, so as to reduce the weight of any part of the unit that has to be carried up the ladder to the minimum practicable weight not exceeding the maximum load as detailed in the manual handling assessment. Any carrying of a unit should be done in accordance with the Manual Handling Regulations (See "Manual Handling" Guidance on Regulations L23).

The use of proprietary vacuum lifters is beneficial both in providing a safe handhold during lifting and improving the stability of the load.

Symmetrical weight distribution of de-glazed windows is required to avoid off centre loads.

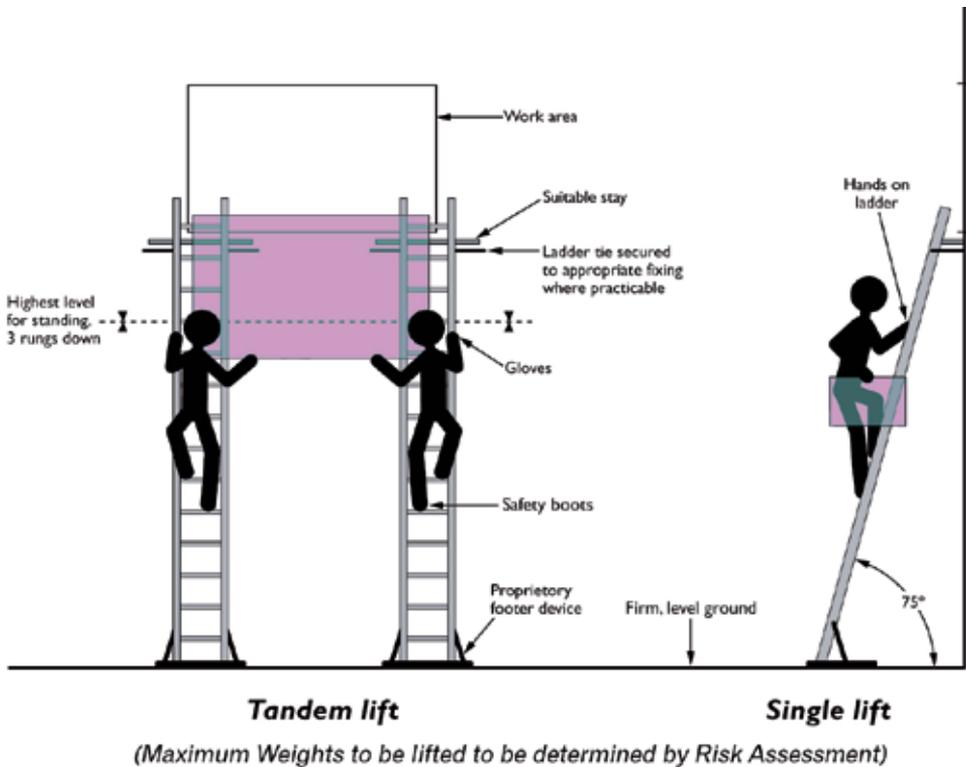
As part of a safe system of work, particularly when doing a tandem lift; consider how you will deal with the window if it does not fit into the aperture.

During post installation operations, such as mastic application or the removal of protective coverings, care must be taken to prevent overbalancing or ladder instability by the use of wall stand-off or ladder stability devices and the relocation of ladders to prevent over-reaching.



Use of Ladders for Removal or Installation at First Floor Level

The following diagram summarises the key items of this SSOW:



Specialist Equipment

Specialised equipment such as Easi-Dec, and Mobile Elevating Work Platforms (MEWPS) such as cherry-pickers or scissor lifts should only be used to the manufacturers' specifications and by trained personnel.

The mentioned principles and safe systems of work (SSOW) are the most reasonably practicable at this time. However, the industry does recognise that the thrust of legislation and the development of technology require it to work towards the reduction and eventual elimination of the use of ladders for removal and installation work as can be seen from the development of devices such as Eazi-Lifter and the Sashmate.

The industry will continue to search for reasonably practicable solutions. Companies should keep in touch with developments through the GGF, plan for the future and set budgets accordingly.



Harnser



"Eazi-Lifter"



Case Examples

The following examples illustrate how the Safe Systems of Work (SSOW) should be used in different circumstances:



Glazesafe

Example 1

A small bathroom window is to be fitted at first floor level at the rear of a terraced property with a total weight of less than 25kg. There is access via a passage at the bottom of the garden and there is a level concrete area 2.5m wide between the house wall and the grass. Consideration should be given first to fitting the window from inside the property.

Where this is not practicable due to the construction of the window or access restrictions within the property, a hoist, window support, or ladder may be specified using the appropriate Safe Systems of Work (SSOW).



Sashmate

Example 2

New soffit, barge boards and guttering are to be fitted to a semi-detached property built on level ground and surrounded by wide, level, paved areas. Mobile towers/Easi-Dec may be specified using the appropriate SSOW, ladders must not be used.



Case Examples



MEWP

Example 3

A larger window is to be fitted to a first floor window with clear level access at ground level. Although the window is heavy it can be devented and/or de-glazed so that the weight of the individual components is less than the maximum load as detailed in the manual handling assessment.

Consideration should be given first to fitting the window from inside the property using a hoist or window support system.



Harsner

Example 4

A window is to be fitted at first floor level immediately above a conservatory.

Consideration should be given first to fitting the window from inside the property using a window support system. Where this is not practicable due to the construction of the window or access restrictions within the property, specify access equipment to safely bridge the conservatory.

Care must be taken to ensure that ladders used to access the platform are secured and that the weight of the operatives and the product does not exceed the Safe Working Load (SWL) of the access equipment specified. Where there is any doubt about the appropriateness of the access equipment selected then traditional scaffolding should be specified.



Definitions

Check

This is the most frequently undertaken assessment of the condition of work equipment. Typically done by the operator with no legal requirement to record (see Inspection). The frequency of the check depends upon the equipment for example:

a) Ladders

A pre-use check each working day, ideally against a "check list", to ascertain whether or not there are any obvious defects prior to using it.

b) Mobile Elevating Work Platform (MEWP)

Checking operation of the equipment, fluid levels, tyres condition, etc. Refer to the manufacturer for details of nature of the checks and frequency for each piece of equipment.

Competent Person

A competent person is someone who has sufficient technical and practical knowledge, usually obtained through training or experience or a combination of both, to be able to effectively carry out a given task. The competent person should also be able to recognise the risks associated with a specific task.

Inspection

An inspection is a thorough, recorded review of a piece of equipment's condition and suitability for purpose by a competent person. The inspection will only be passed if the equipment can be considered likely to be safe to use over the period until the next inspection.

Ladder Stability Device

A device, including anti-slip devices, fitted to the top or base of a ladder, which by altering the geometry or coefficient of friction between the ladder and supporting surface (ground or wall) enhances its stability making the ladder more

secure from a stability induced failure. Devices can be used in combination with each other. See Wall stand-off below.

MEWP

Mobile Elevating Work Platform.

Properly Maintained

A piece of equipment should be maintained in an efficient state, in efficient working order and in good repair. To achieve this objective it should be checked, inspected, maintained and routinely serviced e.g. lubrication by a competent person according to the manufacturer's instructions.

Roofline

Fascias, soffits, bargeboards and rainwater goods.

Tandem Lift

A single lift involving two people working on two separate adjacent ladders.

Wall Stand-Off

Device fixing to the top of a ladder to enable it to be held at a distance from the supporting surface (from prEN131-5). See Ladder stability device above.

Hoist

Device temporarily fixed to the building (usually by clamps) that allows the load to be lifted outside from ground level to the relevant aperture thereby avoiding the need to work at height.

Window Support

Device temporarily fixed to the building (usually by clamps) that allows the window being removed to be fully detached from building and lifted inside thereby avoiding the need to work at height.

Further Reading, References and Standards

To access the following documents please enter the codes below into your search engine (e.g. L23, HSG 150 etc.). You will then be able to open the corresponding paper;

- L23 – Manual Handling
- L25 – PPE
- HSG 150 – Construction
- IND401 – Work at Height Guidance
- INDg402 – Safe Use of Ladders and Stepladders
- INDG403 – A Toolbox Talk on Leaning Ladder and Stepladder Safety
- INDG405 – Top Tips for ladder Safety
- CIS10 – Tower Scaffolds
- CIS58 – The selection and management of MEWPS
- MISC614 – Preventing falls from boom type mobile elevating work platforms
- INDG212 – Workplace Health & Safety: Glazing
- BS 7981:2002 – Mobile Elevated Work Platforms
- BS 1129:199 0 – British Standard Specification for Portable Timber Ladder, Steps, Trestles and lightweight Staging
- BS 2037:199 4 – Specification for Portable Aluminium Ladders, Steps, Trestles and lightweight Staging
- BS EN 131 - 0:1993 – Ladders Part 2: Specification for Terms, Types, Functional Sizes
- BS EN 131 - 2:1993 – Ladders Part 2: Specification for Requirements, Testing, Marking
- BS EN 12811 - 1:2003 – Temporary Works Equipment: Scaffolds, Performance Requirements and General Design
- NASC TG 20:08 Scaffolding Guidance

Other relevant GGF Guidance:

- Code of Practice for Work with Domestic Soffits and Rainwater Goods containing Asbestos Cement
- GGF Code of Practice – Glass Handling, Storage and Transport
- Code of Practice for Working at Heights Safe Window Installation





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